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THIS REPORT BROUGHT TOGETHER FIVE PAPERS BY VARIOUS NATIONALLY KNOWN LEADERS IN THE FIELD OF EDUCATIONAL MEDIA. THE PURPOSE OF THIS PUBLICATION WAS TO REVIEW MAJOR CAREER PATHS IN THE EDUCATIONAL MEDIA FIELD. THE REPORT COVERED DEGREES OF DIFFERENCES WHICH EXIST CURRENTLY AS WELL AS THE COMMONALITY OF LEARNING REQUIREMENTS REPRESENTED AMONG THE VARIOUS AREAS OF PROFESSIONAL INTEREST IN EDUCATIONAL COMMUNICATION. A REVIEW OF PROGRAMS FOR THE PREPARATION OF MEDIA SPECIALISTS WAS INCLUDED IN THE FIRST SECTION. SPECIFIC EDUCATIONAL PROGRAMS FOR MEDIA PERSONNEL WERE DISCUSSED IN THE SECOND SECTION UNDER THE FOLLOWING CATEGORIES -- AUDIOVISUAL SPECIALISTS, SCHOOL LIBRARIANSHIP, BROADCASTING, AND INSTRUCTIONAL TECHNOLOGY -- PROGRAMED INSTRUCTION AND COMPUTER-GUIDED LEARNING. (WB)

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CENTER FOR LIBRARY AND EDUCATIONAL MEDIA STUDIES
REPORT NUMBER 2.903-2

THE PROFESSIONAL EDUCATION OF MEDIA SERVICE PERSONNEL

UNIVERSITY OF PITTSBURGH
THE GRADUATE SCHOOL OF LIBRARY AND INFORMATION SCIENCES
PITTSBURGH, PENNSYLVANIA 15213

All except Allen & Smith go thru the whole background from ideographs to Mergenthaler. Jaske is too wordy

Hunter needs compression to: "He showed ... he showed ...

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THE PROFESSIONAL EDUCATION
OF MEDIA SERVICE PERSONNEL

ED003141

Preliminary Edition

RECOMMENDATIONS
FOR TRAINING
MEDIA SERVICE PERSONNEL
FOR SCHOOLS AND COLLEGES

THE PROFESSIONAL EDUCATION

OF MEDIA SERVICE PERSONNEL

UNIVERSITY OF PITTSBURGH

Graduate Library School

Center for...Media Studies

1964

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Editor's Note

Papers included in this preliminary report are reproduced substantially as submitted by their authors. Some additions, corrections, and changes may be included in a subsequent edition.

C. Walter Stone

The Center for Library and Educational Media Studies was established at the University of Pittsburgh in the fall of 1962. As a research arm of the Graduate Library School, the Center reflects basic University objectives, policies and interests in formal instruction, regional development, and international programs pertaining to responsibilities of the educational communication and information service professions.

This study of The Professional Education of Media Service Personnel reports on work completed for one of a number of Center projects and programs in the field. The publication is addressed to all concerned with educational planning and development, but will hold special interest for those concerned with recruitment and professional education in media service fields.

It is my pleasure to commend this new report on The Professional Education of Media Service Personnel to your attention.

A. C. Van Dusen
Vice Chancellor
The Professions
University of Pittsburgh

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INTRODUCTION

The papers brought together in this volume meet a long-standing and important need in education. Each author is a nationally-known leader in his own field of specialization and each chapter speaks for itself. In a sense, the book is a by-product of the more general program described below and has been issued in advance of completing other work on the program as a service to the profession.

On February 19, 1963 the University of Pittsburgh was awarded a contract under authority set forth in Part B of Title VII of the National Defense Education Act. This contract calls for developing a new program on the graduate level which will help individuals prepare for acceptance of professional careers in planning, operation and administration of educational media services in schools and colleges. The contract also anticipates a definition of requirements for provision of supplementary training which may be needed by teachers, school and college administrators, and others having special--but perhaps more limited--need for knowledge of learning resources and their use. The over-all program is administered under supervision of two co-directors, Professor Harold Lancour, Dean of the Graduate Library School at the University of Pittsburgh, and Dr. Morris L. Cogan, Chairman of the Department of Teacher Education in the School of Education. Responsibility for general management of the program is assigned the staff of the Center for Library and Educational Media Studies.

The problem with which the study is concerned may be stated as follows: graduate professional education in communication and the information sciences has not yet achieved maturity. While a measure of consensus does exist on what constitutes a profession, full agreement has not been reached regarding either the number and kinds of professional jobs for which special training must be provided or the instructional methods which should be used in preparing individuals for media service in schools and colleges. Further, recent changes in the field have led to a situation in which the precise roles played by individuals having "professional" jobs have increasingly become blurred as, indeed, have the "jurisdictional" lines of responsibility drawn among educational media service agencies.

With respect to professional education as such, a similar blurring is evident. In 20 or more universities in the United States which currently use a "communications" label to denote interdisciplinary approaches to educational media there is little consistency in the organization of their curricula or in their patterns of operation. The degrees they award are based on differing academic approaches; there is little agreement on supporting courses which should be considered prerequisite; there is little or no agreement at all upon details of course content, methods of presentation, the learning responsibilities of students, and the like. And, to put it in more specific terms, at the level of specialization, training for educational media service responsibilities are normally divided among a number of colleges and curricula having such variant labels as audiovisual education, library science, radio and television, speech and theater arts, journalism, fine arts, communication, public communication, public opinion, editing and publishing, mass communication, documentation, information storage and retrieval, data processing, advertising, and public relations.

The Professional Education of Media Service Personnel does not propose a single program or type of curriculum offering specific courses of instruction and plans for laboratory study. Rather, it accomplishes the important task of reviewing major career paths in the educational media field in terms of specific curricular needs. It states degrees of difference which exist currently as well as the commonality of learning requirements represented among the various areas of professional interest in educational communication. Finally, it proposes a new rationale which in the future may very well guide major developments in the field.

The recommendations advanced by Drs. Meierhenry, Allen, Janke, Hunter, and Smith are today the subject of careful study at the University of Pittsburgh which is looking toward the formulation of its own program in educational communication. I believe the work may be studied and reviewed with profit by all who are seriously concerned with developing and/or improving professional education for media service in schools and colleges and that it makes an important contribution to professional thinking regarding educational requirements of the communication and information sciences generally.

C. Walter Stone
Director, Center for Library
and Educational Media Studies

I. PROGRAMS FOR THE PREPARATION OF MEDIA SPECIALISTS

--By Dr. Wesley C. Meierhenry, Assistant Dean, Teachers College, The University of Nebraska

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Rapid changes in every facet of human endeavor are demanding marked changes in the programs and activities of our various social institutions. Because education is, in part, a reason for the rapid changes and also is the major agency which enables humans to adjust to and perhaps predict some of the likely changes, it has the greatest responsibility to eliminate obsolescence and to maintain relevance. Static curricula and traditional experiences no longer sufficiently meet the new demands being made on education. The older patterns for providing instructional materials are also no longer adequate because they were developed to meet the needs of educational institutions where the courses of study were fixed and the traditional means of making learning materials available were adequate, related in part to the fact that the rate of change in content was almost imperceptible from year to year, if not decade by decade, or century by century.

A second factor which has rendered our present structure of providing learning experiences out-of-date is the revolution which has taken place in regard to the methods and means of communication. Sign language and painting on the walls of caves have long since been replaced by other more precise and mass produced means of communication. The rapid development of new and improved means of communication has made the problem both simpler as well as more complex. Fortunately, however, mankind has at its disposal more avenues for effective communication at the very moment when there is increasing need for staggering amounts of new knowledge to be transmitted and assimilated.

The necessity, therefore, for new approaches and conceptions of communication and information services has been brought about by the nature of the world in which we live. These new patterns are developing in response to the demands for an almost instantaneous retrieval of past experiences in a wide variety of communication forms or the possibility of immediate dissemination of current happenings regardless of where they occur, including space. The problem is to develop a communications and information service system with the appropriate operational hardware and staffed with a full complement of specialists in order to successfully operate the system.

As a recent Task Force of Media Specialists has indicated:

> "...a technological leap forward is required in education. The decision of any school system to attempt this leap must be made in relation to certain assumptions:
>
> "Present instructional programs are inadequate to meet certain obvious needs of students who will grow up and work in the world of the 1960's and '70's.
>
> "A new technology for instruction has been developed and proved through basic research and practice. This development has now reached a level that will permit rapid expansion of application and of further innovation.

> "The new educational technology is capable of meeting and solving certain of the schools' major problems in instruction, organization, and administration.
>
> "Application of the new technology will result in major changes affecting the administration, organization, and physical facilities of the public schools.
>
> "Methods of instruction will be modified to a major degree, particularly in the presentation of information.
>
> "Teachers and learners will have new roles and changed activities as a result of this technological change.
>
> "A new kind of professional will be required to provide leadership in design, implementation, and evaluation of programs of education which make the fullest use of new media. The functions performed by this leader and the resources he brings will be among the essential determinants of success or failure in tomorrow's schools." (1)

DEVELOPMENT OF NEW MEDIA PROGRAMS

It was proposed, therefore, to develop a new framework for the preparation of media specialists who might serve in varying capacities in educational institutions. In order to accomplish this task, four media specialists, William Allen in audiovisual, Lester Janke in library science, Armand Hunter in broadcasting, and Wendell I. Smith in instructional technology each were commissioned to prepare position papers from the perspective of their specialty. The assignment was to begin with the traditional areas of specialization and, taking into account the new functions to be served by media specialists, to propose preparation programs for the 5th, 6th, and 7th years of preparation which would make possible the meeting of the new requirements. Each specialist was required to examine his own area in light of the new purposes and functions, to specify what was crucial from his area specialization which should be required by individuals regardless of their area of specialization. In addition, each position paper was to specify the additional preparation which would be needed beyond the general competencies to develop each area of specialization.

Certain guidelines were developed for the papers which included entering positions likely to be filled at the end of each year of graduate study, common core for all specialists, and dissimilar competencies required of a specialist in each area.

The structure for the desired learnings was developed by the writer out of his own experiences and perceptions of some of the major areas which are of concern to the media specialists, supplemented by other suggestions that have been made by other groups. One such group, for example, indicated the following:

> "The functions of educational media personnel may be described under five headings--Service, Teaching, Research and Experimentation, Curriculum Planning, and Administration and Leadership. These are defined with particular reference to new forces influencing the educational media:
>
> "Service - includes instructional television, closed circuit television, individual teaching machines, technological distribution, information storage and retrieval, local production laboratories, along with services normally found in campus educational media programs.
>
> "Teaching - includes coverage of (a) new devices, (b) large group instruction, (c) small group instruction, (d) programming, and (e) team teaching.
>
> "Research and Experimentation - includes such items as (a) Testing new devices and their applications, (b) Promotion of worthwhile application of the newer devices, (c) Designing and developing appropriate materials and techniques.
>
> "Curriculum Planning - includes active participation in curriculum planning and its implementation.
>
> "Administration and Leadership - includes organizing, managing, and developing programs of service, teaching and research on pertinent media in such a way as to insure optimum effect within all curricula. To perform these functions such a person must have academic rank commensurate with the importance of his responsibilities." (2)

Another approach to the problem was one suggested recently by C. Walter Stone in which he indicated that the following media functions are those which must be performed within schools and colleges.

> "(1) Research and Experimentation - involving both instructional uses of media as well as the study arrangements developed to satisfy the media needs;
>
> "(2) Production of new materials - taking into account special requirements of single types of media as well as the 'conceptual interlock' (which increasingly must guide preparation of new materials in terms of anticipated instructional use);
>
> "(3) Distribution - including materials and equipment of all kinds;

"(4) Counselling and Training - to improve instructional uses of media;

"(5) Demonstration and Display Service - more adequate at least than that provided in schools and colleges under more typical present day arrangements (which place responsibility for this type of work in the office of a harried superintendent or busy principal, or, on a campus, in the office of a coordinator of public events);

"(6) Computer Applications - which will make possible the harnessing of the full range of modern techniques for storage, retrieval, and correlation of data masses one end result of which may very well and soon be (when biologic computer units come more regularly into use) the generation of new intelligence which itself may become capable of taking further intelligent action." (3)

The outline which was presented by the writer to the specialists and accepted by them was the following:

"Information and Understanding (unique contribution)
Application Skills (utilization)
Manipulative Skills (production)
Operational Abilities (administration and supervision)
Appropriate Judgements and Skills (research skills)" (4)

The position papers which follow in succeeding chapters reflect the above pattern completely. In some instances, it was used as a guide, but was not made explicit in the papers.

Following the preparation of the position papers, the writers were convened to react to the draft of each of the other specialists and to identify what seemed to be common elements, even though different language or terminology was being used. The writers of the position papers then re-examined their proposals and prepared final statements with modifications which ranged from a re-location of content to new descriptions of competencies in order to bring them more in harmony with similar descriptions of one or more of the other specialists.

In this chapter the writer has organized the results of his intensive analysis of the four position papers, supplemented by the discussions of the four specialists, and then projected the tables and discussions which follow.

The project was undertaken with the hope that even though in the past specialists in the three areas of audiovisual, library, and broadcasting were prepared in programs which isolated one specialty from another, new approaches might reveal that common elements existed among them. This expectation was based on the idea that audiovisual, library, and broadcasting specialists were all concerned basically with the field of communication and instructional devices and, therefore, there should be many common elements regardless of which specialty was being followed.

A similar idea was expressed by David Berlo when he said:

> "I would urge us to look for similarities among media, not differences; to look for coordination, not the preservation of separate treatment and equal rights. Obviously, there are differences among the media in terms of mission, costs, adaptability to various intents, and effects; nevertheless, our primary need is to understand the relationship of our media to effect and intent.
>
> "We need to emphasize the competence of the rigorous generalist, we need to trim and organize ourselves in such a way as to emphasize where we are going, not how we are going to get there." (5)

The difficulty of preparing specialists in the usual manner in either one, two, or three years of advanced study is acknowledged by the specialist in each of these areas. Unless, therefore, there were many common elements, the development of a new type of media specialists would be an impossibility within reasonable time limits available to graduate students.

TECHNICIANS OR POLICY MAKERS

One of the first problems faced in developing a preparation program for media personnel is the exact role which the specialist should play in educational enterprises. The dilemma is not a new one since it appeared during a seminar held in 1960 when William Fulton was reported to have said:

> "Actually, we are highly inconsistent when we talk about a generalist and a specialist combined. I think it is impossible. If he is working on one level, he will delegate jobs to people who are highly specialized in segments of this whole operation. We've been talking about the general elements required on this whole administrative job. Now, that doesn't mean that I'm going to be a specialist in every one of them, but I may need to know a good deal about all of them if I'm going to generally supervise a program." (6)

In the past, the preparation of the technician or specialist has been conducted within the confines of the special fields of audiovisual, library, and broadcasting with varying degrees of success. The new demands which are being made, however, call for the education of new types of media generalists who are capable of managing the broad range of communication forms utilized in education today. The proposal under which this project is being conducted states the following about the need for a synthesis to meet new demands.

> "In the interest of improving instruction, coordinating resources, reducing the high cost of duplicate facilities and avoiding inefficiency, professional standards and opinion now call for development of new improved educational media services. Arrangements suggested for the future include central administration of units capable of (1) conducting (or assisting the conduct of) surveys, research and experimentation involving instructional uses of media; (2) local production of teaching materials; (3) regular provision of advisory and training services concerning instructional uses of media; (4) distribution of materials and equipment; (5) the making available of adequate demonstration and display facilities; and in some instances, (6) provision of computer laboratory and data recording service.
>
> "Professional education for the rendering of media service in schools and colleges should reflect arrangements most likely to obtain in the future. While the recruitment and training of a professional corps to work in the field is presently accomplished in many places and by different academic departments, it is evident--e.g. in opinions expressed by library leaders, audiovisual specialists, radio and television personnel, curriculum specialists, documentalists and others, as well as school and college administrators, educational and training directors--that a new, more comprehensive program of professional education must be designed." (7)

ENTERING COMPETENCIES

As is shown in Table 1, page 10, each of the specializations assumes a baccalaureate degree from an accredited institution. The development of a new media preparation program must be based on current realities in regard to both a reservoir from which these specialists will be drawn as well as current patterns of prepararation. As a consequence, those individuals moving in the direction of audiovisual and library specialization will generally have been drawn from a teacher education program completed at either the baccalaureate degree level or at the fifth year level. It would be assumed that these people would be certificated and in all likelihood would have had teaching experience before entering into these two areas of media specialization. Those expecting to specialize in broadcasting would have completed, in most instances, an undergraduate program in radio and television. The preparation program for each of the three areas of specialization--audiovisual, library, and broadcasting--is designed to move from a specialist in each of these areas to a generalist so far as the management of all media is concerned.

The area of instructional technology has not been spelled out heretofore either in the literature or in practice. It is a type of specialization which develops in reverse order from the other three, that is moving from a generalist at the beginning graduate level to the development of a specialty in the 6th or 7th years of graduate study. A pool of candidates for this particular type of program would come primarily from the behavioral sciences areas, although persons expecting to specialize in the field of instructional technology might have experience in teacher education and teaching but the likelihood is that most candidates will not have had such a background.

This, to a degree, raises a question about the pertinence of teacher education and teaching experience for all media specialists. An analogous situation might be the field of public school administration where historically teaching experience has been required as a pre-requisite for administrative work. In a recent publication on preparation programs for school administrators, the following discussion was presented.

> "What about competences unique to different positions in administration and supervision? Thompson supplied a helpful clue by specifying the expertise of the supervised as one dimension of uniqueness particularly relevant to the function of supervision. The thesis has already been proposed that the larger the scope of the administrative position and the further away it is from the technical undergirding of the organization, the less likely the same specialized technical (professional) skills are to be required to discharge the responsibilities of the position. Conversely, the closer to the technical (professional) level of operation is the executive function, the more essential for the administrator or supervisor is a measure of expertise comparable to that possessed by the administered. That is, the degree of uniqueness of the competence relevant to different supervisory and administrative positions is related to the specific technical operations basic to the purpose of the organization, to the closeness to the people who perform the operations. For example, the foreman on a television assembly line must be more competent in performing the specific tasks he is supervising than the division head or the president of the company. The superintendent of schools in a large school district and a department head in a 1,000 pupil secondary school represent comparable cases in point." (8)

Using this same line of argument, it would appear that the media director in an individual school building who works closely with teachers

Table 1. Entering Competencies and Background

(Each specialization assumes a baccalaureate degree from an accredited institution)

AUDIOVISUAL	LIBRARY	BROADCASTING	INSTRUCTIONAL TECHNOLOGY
Teacher Education Program.	Teacher Education Program.	General Areas of Study.	Suggested Undergraduate Majors or Minors.
Certified.	Foreign Language(s).	(1) the arts and humanities; (2) the social sciences; (3) the natural sciences; (4) the communications media other than broadcasting; (5) the broadcasting media. The major field of study should develop within the student: (1) professional skills and abilities in the techniques and practices of broadcasting; (2) standards of taste and evaluation in terms of content and form; and (3) a basic understanding of the sociological, political, economic, cultural and educational impact and influence of the media.	A major and a minor (fifteen credit hours) drawn from the following should insure such a foundation: sociology, statistics, educational psychology, elementary education, secondary education, library science, communications, audio-visual education, engineering (electrical, computer, mechanical), anthropology, and television and radio production. Minimum Level of Competencies. (1) Define and use appropriately the elementary vocabulary and core concepts of: (a) the psychology of learning: the models for operant and respondent and conditioning. (b) the psychology of perception: elements of sensation and perception. (c) the psychology of motivation: reinforcement, drive, motive, incentive.

(d) individual differences: rationale for measurement, general nature of intelligence, aptitude, achievement, and personality tests. (e) rationale for the application of scientific methods to the study of behavior. Note: 1(a) through 1(e) would be acquired in any sound course in general or educational psychology. (2) Define and use appropriately the elementary vocabulary and core concepts of (a) sociology or anthropology (b) principles of education (c) modern algebra or statistics (d) acquisition and organization of instructional materials.			

must know what is involved in the teaching act. The further one would move away from the classroom teacher, however, the less teaching experience might be required. The media director of an educational institution may not require, therefore, such an experience. This is the contention of Smith, who has developed the sequence in instructional technology, and to some degree, this is true also of the preparation program developed by Hunter for those who would begin as broadcasting specialists but who would eventually become media directors.

COMMON CORE OF COMPETENCIES FOR FIFTH YEAR

As was indicated earlier, each of the specialists preparing position papers was asked to indicate the relevent learnings from his own area without regard to any of the other areas of specialization. Table 2, page 14, represents the common elements which emerged from the position papers, supplemented by the discussions which were held after the preliminary drafts had been developed. As might be expected, agreements were not complete in each of the competencies specified, but the conceptions as to what should be included were close enough, in the opinion of the writer, so that in each area of specializationthe needed competencies were the same or strikingly similar. Where there were some marked differences of opinion as to the relevancy of a competency, footnotes on Table 2 explain omissions or additions which might be needed for a particular area of specialization.

It should be clearly understood that even though a competency and its related objectives may be closely related to some course titles which are now in existence, the approach of this volume is not on specific courses. Stated differently, the preparation requirements may be met, in some instances, through formal courses; in some cases, through reading lists and seminar discussions; and in other instances, through individualized study including various forms of programed instruction.

A great need exists in the whole field of professional education to extrapolate from the related disciplines the relevant findings of some of these disciplines which are related to the educational enterprise. Such a need is equally or more in evidence in the field of media applications. For example, if one had unlimited time it might be quite worthwhile to pursue a course in the psychology of human learning, another course in human personality, and such other courses as are related to the various competencies. In the objective one will find an indication of those understandings needed which are pertinent from such a field as the psychology of learning which in turn have application to research, theory, and practice in instructional media. Therefore, the implications of the approach taken is that through a variety of means, either at the local institutional level or in the development of new instructional materials, the pertinent materials from related disciplines must be identified and refined and put in a form usable by the media specialists in training.

George Gerbner also has expressed the feeling that the taking of courses as they are currently being presented in the social and behavioral sciences is not the most economical way of obtaining relevant understandings.

> "The materials necessary for a reorientation of learning in professional audiovisual education either do not exist, or are so scattered both in terms of location and of orientation as to be virtually unavailable. Perhaps the first task of professional leadership in the field might be to sift, synthesize, develop, and focus social science materials in the direction of educational communication theory and practice.
>
> "I don't think much can be done until that basic job of intellectual leadership is well under way. I don't think the contributions of social science can be economically harvested by sending students into a dozen standard social science courses during the time of professional preparation." (9)

A similar feeling was expressed recently by David Berlo when he said:

> "At present, we are in a dilemma. The extensive data-gathering being done by competent media specialists who are relatively unsophisticated social scientists will not produce evidence of much theoretic merit. On the other hand, data gathering in learning and perceptual theory now being done by competent social scientists who are relatively unsophisticated media specialists will not produce evidence of much social significance to the use of the media.
>
> "...it is time for the social scientist and the media specialist to work together in producing useful research. Ideally, this joint competence should be contained within the skin of a single individual. If this is not possible, we need at least to collaborate. As long as the media specialist defines the social scientist as irrelevant and the social scientist defines the media specialist as incompetent, we will not progress." (10)

A further wish at the time the project was developed was that some way might be found to synthesize and correlate the relevant materials from the several disciplines. For example, there is a good deal of indication that the areas of psychology, sociology, philosophy, anthropology, and in some instances, political science, are dealing with many of the same human phenomena, but not always with the use of the same terminology. It would be extremely helpful, therefore, if some way could be found to perform the ancient role which was fulfilled by philosophers of interrelating and identifying meanings from all of human knowledge.

Table 2. Fifth Year: Common Core of Competencies Regardless of Area of Specialization

COMPETENCY	OBJECTIVE	FIELD OF SPECIALIZATION			
		Audiovisual Specialist	School Librarianship	Broadcasting	Instructional Technology
Psychology of Human Learning, Human Motivation and Personality, Human Development and Perception	Understandings in regard to relevant findings from the field of psychology of learning as applied to research, theory, and practice in instructional media.	Common	Common[1]	Common	Common
Communication Theory and Process	Information about and knowledge of such areas as communication models, structure of language, theory of meaning, information theory, linguistics, content analysis, and small group and reference group theory.	Common	Common	Common	Common
Scope of Instructional Technology	Overview of the advances in the field of media from movable type to the newest developments along with the identification of the unique contribution of each medium to learning.	Common	Common	Common	Common
Background in Educational History and Philosophy	An understanding of the various philosophical positions and their implications for media use along with key historical developments in education especially as they are related to media.	Common[2]	Common	Common	Common
Media Production Skills and Operation of Related Equipment	The development of skills in the production of simple and routine materials such as transparencies, tape recordings, slides, graphics, 8mm motion pictures and	Common	Common	Common[3]	Common

	the operation of the necessary equipment for viewing or listening.				
Research Design and Analysis	Familiarity with experimental design and statistical techniques sufficient to interpret research reports and to conduct simple research studies.	Common	Common	Common	Common[4]

[1] Specialists in library science would be expected to have sufficient background in this area at the pre-professional level; if not, it should be included.

[2] Specialists in audiovisual would be expected to have sufficient background in this area at the pre-professional level; if not, it should be included.

[3] Specialists in broadcasting would be expected to possess such skills as a part of the pre-professional preparation; if not, it should be included.

[4] Specialists in instructional technology would be expected to develop much more background in research methods and statistical techniques in order to conduct independently various types of research studies.

Examination of Table 2, as well as the succeeding tables, reveals that the learnings for the media specialists are drawn from a wide range of disciplines. There is an attempt to balance the attention to media implications and productions with attention to the broader areas of human activities. The focus is upon the kinds of functions to be performed and then relating these functions to the necessary kinds of learnings that are required.

Specific Competencies Required for Specialists

Because specialists in audiovisual, library, and broadcasting need to perform certain services and advisory functions, there are specific experiences which they must have as shown by Table 3, page 18. Some of the competencies required by audiovisual and library specialists at the fifth year level also become core areas for all media specialists at either the sixth or seventh year level. (See Table 7, page 28.)

There are some competencies which have the same general title for each general area of specialization, such as "selection, evaluation, and programing of instructional materials," "interns," and "administrative and management experiences," but which are to be developed within each of the areas of specialization. The new programs as suggested, therefore, continue the development of a specialist, except in instructional technology, while developing the person for a media management responsibility.

In addition to the common core shown in Table 2 and the specific competencies shown in Table 3, an individual would take a variety of courses in both cognate as well as within teaching and/or media areas. The competencies as suggested, therefore, assume planned experiences in other areas of interest and need of the candidate.

COMMON CORE OF COMPETENCIES FOR SIXTH YEAR

As was true for the common core for the fifth year, there are a number of elements shown in Table 4, page 22, where there is sufficient commonality for the various areas of specialization so that they might be met through common experiences. There are some differences as to emphasis within the area of competence, such as, computer-based instruction where the librarian's concern is primarily in information storage and retrieval while the instructional technologist must be able to deal with computer languages and information systems. In general, however, the objectives as specified in Table 4 need to be met at a minimum level for all areas of specialization with additional experience for some of the specialists.

Specific Competencies Required for Specialists

With the exception of the area of instructional technology, the specific competencies for the other specialists decrease in number at the sixth and seventh years as shown in Tables 5 and 6, pages 24 and 26. The reason for this is that the audiovisual, library, and broadcasting specialists are moving toward a generalist background. Just the opposite is true with the persons expecting to work in the area of instructional technology who are increasingly being prepared to become specialists in some one area of media and whose background in research is also being increased.

COMMON CORE OF COMPETENCIES TO BE OBTAINED DURING EITHER THE SIXTH OR SEVENTH YEAR

One of the assignments given each of the persons preparing a position paper was to identify the common elements from their area of specialization which should be in the background of all people who expect to work in the media field by the time they complete the seventh year or earn the doctor's degree. Table 7, page 28, shows these competencies, the objectives to be reached, and the area of specialization from which the content would come for the competencies and objectives.

The reason each area of specialization has so few requirements is that those competencies which might be considered discreet and isolated by specialists in one area were found to be almost universal in their application. This finding is really the most crucial one, because as stated earlier, if more similar dissimilar elements had not been found, it would be impossible to develop a new kind of media specialist within the time, energy, and financial resources available to most individuals.

SUMMARY

This summary will attempt briefly to focus on the question, "What do this and the succeeding chapters add up to?"

Recruitment

Because the use of media is related to the teaching and learning functions, it is likely that the major reservoir of candidates working in media will come from the educational field. Increasingly, however, candidates will come from almost every conceivable background, and especially the behavioral sciences where there may be an interest on the part of prospective candidates for working with people as "change agents." In the future, media management positions will be filled by people coming from a wide range of specialties. This possibility was recognized recently by Anna Hyer when she said:

Table 3. Fifth Year: Specific Competencies Required Only for Specialists

AUDIOVISUAL SPECIALIST	SCHOOL LIBRARIANSHIP	BROADCASTING	INSTRUCTIONAL TECHNOLOGY
Develop Ability to Analyze Instructional Situations and Problems in Order To Make Media Applications (a) Acquisition of knowledge about the characteristics, advantages, limitations and applications of the different media and instruments of instruction (film, filmstrips, T.V., programed instruction, multi-media systems, computers, etc.) (b) Relate this media selection and use to the problem of meeting various educational objectives (transmission of factual information, modification of attitudes and opinions, development of skills, etc.) (c) Develop the principles of optimum utilization of instructional techniques, materials, and devices (techniques of classroom use, large group instruction, small group instruction, individual instruction, etc.) in relation to objectives and in the solution of specific	Selection Maintaining qualitative standards for the selection of materials is essential in any school library or instructional materials center. Training in the field of selection will need to include background information about (1) printed materials. It is necessary for the media director to know how to select materials by the use of reviews and evaluations by experts in each specialization, and to make use of the selection aids that are available. (2) programed materials. In this area it is essential that the librarian have basic knowledge of what is programed instruction, what makes up a good program, and how programed material can fit into the context of the educational system in which he works. (3) The school librarian's main interest in educational television is how it can be used as another one of the media in supplying teacher and	Broadcast Skills Knowledge of the producer's functions and responsibilities in the planning and supervision of program production, and the principles of composition and design of program elements and production techniques for the purpose of securing effective communication and the desired audience response. Knowledge of the principles and problems of staff and station administration and management, and the responsibility of management in the determination of the place and function of the broadcasting station in the community and society it serves. Understand the legal and governmental regulations which apply to broadcasting and station operation. Knowledge of the standards, values, and criteria by which programs and the station can be judged as to the fulfillment of their purpose. Understand the nature of the broadcasting audience, its needs, and its requirements. Station Administration Ability to handle the responsibilities of middle	Research Activities Design at least two studies in each of the following domains: (1) Comparative effectiveness studies of instructional procedures, (2) evaluation studies, (3) descriptive studies. Each student will analyze with appropriate statistical tests data from "live" studies of the instructional process.

media utilization problems. (See also Table 7 "Competencies Required of All Media Specialists.") Additional Competencies Required of the "Technologist-Administrator" Principles of Media Program Administration: Acquisition of operational abilities in the operation of AV programs in individual schools, school districts, and colleges. This will include supervision of instruction with media, equipment acquisition, standards and purchase guidelines, architectural requirements.	student with raw material necessary to enrich their academic pursuits. (4) audiovisual. In the area of audiovisual, the background will need to be broad and encompass some knowledge of production in addition to information on how to evaluate, select and utilize such items as films, recordings and teaching devices. Reference The word "reference" encompasses the whole reason for having a school materials center. Any time and in any way that the librarian utilizes the materials in the collection, "reference" service is being given. Technical Processes The need to organize materials becomes more essential as the materials collection grows in size and in scope, and, since the traditional systems such as the Dewey, the Library of Congress and other systems have proven workable, they will need to be taught to all librarians. Adaptations of these systems and applications of other plans will also need to be covered.	and upper level station administration and management, educational or commercial. Ability to serve as a production manager, an operations manager, a program director, or a station manager. In an educational station network situation, ability to handle any of the administrative staff positions, including that of the network director. In a commercial network situation, ability to handle most of the middle and upper level administrative positions. In the school systems, ability to serve as the director of any closed-circuit communications system and/or educational station.	

Table 3. Fifth Year: Specific Competencies Required Only for Specialists (continued)

Selection, Evaluation and Organization of Instructional Materials

Persons preparing to direct programs in each of the specialities must have knowledge of selection and evaluation of the materials and equipment under their supervision. There may be some general criteria that can be developed but currently each area of specialization may have to continue to apply the standards for its own.

Internship

The internship should be in the area of the individual's specialization. The location to which the intern is assigned should be one with a full range of resources so that he will have both breadth and depth to his experiences. Systematic supervision should be provided by the institution so that it will be able to assume responsibility for the efficacy of the internship experience.

Administrative and Management Experiences and Understandings

To perform the services that are necessary to achieve maximum value from the great amount of material placed in the hands of the school or district media specialist, some basic administrative principles must be included in the fifth-year curriculum. Some of the items that need to be emphasized are as follows:

(1) budget and school financing practices;
(2) personnel relationships;
(3) operational procedures;
(4) methods of working with faculty and staff.

Although these administrative understandings may be universal in nature, at the present they may be presented best in connection with and perhaps, parallel to the internship.

> "We should recognize that if and when a merger of media interests occurs, AV will become only one of several media speciality fields; that is, on a par with each of the others. There must be an equal chance for members of other media specialties to rise, through suitable professional education, to the general administrative positions. In blunter words, if we expect TV specialists and librarians to work under a former AV specialist, we must be equally willing to work under them." (11)

Preparation Programs

Throughout this chapter constant reference has been made to the fact that neither the competencies nor the objectives should be thought of in terms of individual courses. An attempt has been made to state the objectives in behavioral terms. It will be the responsibility of each institution offering a program for the preparation of media specialists to develop a program consisting of individual study, regular classes, internships, and the development of new teaching materials and techniques which will make possible the meeting of requirements imposed upon the future media specialists.

Implicit in this arrangement is the movement of each candidate through the preparation program on the basis of an individually planned sequence which would be dependent upon his past experiences and the needs and interests of the candidate. In order to be functional, this approach will involve a great many individually planned instructional sequences along with small group discussions in order that effective preparation might be achieved in the shortest period of time.

Role of Media Specialists

The new type of media specialist being projected is one who is familiar with the rapidly changing society. He should have considerable familiarity with the various forces that shape and mold the way in which people act and behave. The reasons for such understandings grow out of feeling that communication involves more than the development of intelligible messages and their appropriate transmission. The person working in media should be aware of whether the ideas which are being communicated are honest and appropriate and in the public interest. This is part of the reason for the heavy emphasis in the projected program in the area of the social sciences.

In addition to the matters of public policy which are involved in communication and which pertain largely to the social sciences, there is an equal responsibility to understand the impact of various kinds of messages and stimuli on the human organism. Involved here is the whole broad range of understandings which pertain to human learning including man's past experiences which have brought him to the present point of evolution and his likely hopes

Table 4. Sixth Year: Common Core of Competencies, Regardless of Area of Specialization

COMPETENCY	OBJECTIVE	FIELD OF SPECIALIZATION			
		Audiovisual Specialist[1]	School Librarianship	Broadcasting	Instructional Technology
Advanced Study in Learning, Perception, and Communications	Define and utilize correctly the elementary and advanced vocabulary, principles, and concepts in regard to human motivation, personality development, perception, cognition, theories of communication, and the functions of language in society.[2]	Common	Common	Common	Common
Principles of Message Design	Acquisition of knowledge about the principles of visual and audio message structure including such related factors as how people look at pictures, cues, and content of visuals related to learning. Production skills in the development of various media incorporating the above mentioned principles.	Common	Common	Common	Common
Instructional Systems	Design of and analysis of systems, programming for learning, and operational research in instructional systems compatible with various administrative and curricular patterns.	Common	Common	Common	Common

Computer Based Instruction	Understand computer operation and the principles of programing the computer in order to achieve specified results. Experience should be presented in the breaking down of subject matter to computer based instruction and the application of computer technology to instruction and to other educational problems.	Common	Common[3]	Common	Common
Research[4]	Experience in determining and defining research problems in media. Ability to design and supervise all types of research studies in instructional systems utilizing computer resources and facilities if appropriate to the data.	Common	Common	Common	Common

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[1] Competencies shown below apply to both fifth and sixth years in the case of AV specialists.

[2] Same as "psychology of human learning, human personality, human development and perception" shown as common core for the fifth year.

[3] The greatest interest of the library specialists in the computer is primarily for information storage and retrieval with less concern for computer based instruction. Instructional technologists are required to become acquainted with computer languages and information systems.

[4] There are some differences in emphasis on research as among the various specialities. The librarian may require less formal experience in research while the audiovisual and instructional technologist might be expected to actually conduct research worthy of reporting in recognized journals.

Table 5. Sixth Year: Specific Competencies Required Only for Specialists

AUDIOVISUAL SPECIALIST[1]	SCHOOL LIBRARIANSHIP	BROADCASTING	INSTRUCTIONAL TECHNOLOGY
Problems in AV Administration Practice in solving typical current and possible future problems in AV management, finance, supervision, public relations, production, evaluation, and utilization.	Utilization of Materials Background is needed for the service which seeks out instances of good utilization, discerns problems and areas needing improvement or emphasis, and attempts whenever possible to aid in improving instruction.	Broadcasting Production Ability to design and produce a radio, television, or film program or series for instructional use which would incorporate the principles of effective learning and utilize the methods of programming. Ability to design and produce the instructional materials to be used in such a program or series. Design and develop an instructional "system" to achieve a particular learning objective, by the creative combination of the various media according to their relative nature, function, and effectiveness. Ability to translate media information into computer languages for storage and retrieval. Use and teach the use of, the "hardware" or the equipment and devices of instructional technology.	Preparation of a Program As an adjunct to and an integral part of the second year's seminar on programed instruction each student will be required to produce a 200-frame program under supervision.
Specialized Production Techniques Determined by Special Interests Intensive study of unique instructional and persuasive aspects of materials production (message design) of various kinds: motion pictures, television, filmstrips, graphics, programed instruction, etc.	Inservice Activities Familiarity with techniques for promoting increased and improved utilization of educational media through cooperative endeavors with supervisorial staff members who have specific field responsibilities in the curriculum disciplines is required. Among the skills needed would be those related to the planning and implementing of inservice workshops, seminars or extension classes; as well as those associated with the publication of guides, brochures and audiovisual materials to supplement the other activities. At the college level the media center administrator might also be expected to provide regular campus and extension courses for preservice		Production of Multi-Media Learning Programs Production of relatively sophisticated (multi-media) learning programs should be attempted by each student during the second year. Production refers to the total learning program rather than to all of its components and is analogous to the production of a play by a director. The student should play a role in the production of some of the components of the learning program.
			Research Activities Analyze, design, and synthesize two miniature instructional systems, one of which includes computer-guided instruction and one of which includes "media saturation." The instructional system has to be small—perhaps only one

	and inservice teachers, in addition to the services and direction given to college faculty		classroom, one subject matter for a brief period of time (one or two months maximum), and one live teacher.

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[1] Competencies shown for both fifth and sixth year in the case of AV specialists.

Table 6. Seventh Year: Specific Competencies Required only for Specialists

AUDIOVISUAL SPECIALIST	SCHOOL LIBRARIANSHIP	BROADCASTING	INSTRUCTIONAL TECHNOLOGY
Fifth and sixth year programs shown together in Table 5	**Research** Mainly research activities in area of specialty.	**Philosophy** Understanding of the purpose and meaning of science, the interests and problems of science, and the ethical issues and values of science. And, being familiar with the philosophical issues and problems found in the best of our poetry, prose, and drama. **Administration** Utilization of the principles of effective administration and management to operate a complete media system or service. Ability to apply his knowledge and understanding to the value judgments and decisions required of top administration. Solution of problems of education in which instructional systems offer better teaching and learning. Background to serve as the top administrator or "Chief-of-Staff" of a complete "educational systems" service, or learning resources center. This would include working with other top administrative officers and offices, hiring, organizing and supervising a	**Specialization** Intensive specialization is called for with several possible areas in specialization suggested as follows: (1.) Information storage and retrieval (2.) Research on instructional technology (3.) Computer guided instruction (4.) Administration of a.) Instruction-Process b.) Instruction-Materials c.) Production Center-Learning Programs. Each specialization presents somewhat different patterns but each gives major attention to research activities.

		faculty and staff, developing and administering a budget, developing and administering policies and departmental procedures, coordinating the various media branches and services, and making an "instructional systems" whole that is greater than the sum of the individual media parts.	

Table 7. Sixth or Seventh Year: Common Core to be Acquired by Each Media Specialists From Each Other Area of Specialization During Either the Sixth or Seventh Year

COMPETENCY	OBJECTIVE	[illegible]			
		Audiovisual Specialist	School Librarianship	Broadcasting	Instructional Technology
Develop Ability to Analyze Instructional Situations and Problems in Order to Make Media Applications	(a) Acquisition of knowledge about the characteristics, advantages, limitations and applications of the different media and instruments of instruction (film, filmstrips, T.V., programed instruction, multi-media systems, computers, etc.) (b) Relate this media selection and use to the problem of meeting various educational objectives (transmission of factual information, modification of attitudes and opinions, development of skills, etc.) (c) Develop the principles of optimum utilization of instructional techniques, materials, and devices (techniques of classroom use, large group instruction, small group instruction, individual instruction, etc.), in relation to different educational objectives and in the solution of specific media utilization problems.	Developed by AV	Common	Common	Common

Principles of Media Program Administration	Acquisition of operational abilities in the administration of AV programs in individual schools, school districts, and colleges. This will include supervision of instruction with media, equipment acquisition, standards and purchase guidelines and architectural requirements.	Developed by AV	Common	Common	Common
Patterns for Organizing Library Materials	A basic understanding of the most widely used systems of classifying book materials, the Dewey and Library of Congress plans; the merits and shortcomings of using classified systems for organizing non-book materials and alternate systems that are workable.	Common	Developed by Library	Common	Common
Selection of Library Materials	Familiarity with the standard aids for the selection of book materials and how they are used in the selection process; aspects of the book that need to be considered when making selections and the development of criteria as a result of this knowledge and an understanding of the total school curriculum; the type of books needed to provide for all types of needs, references and enrichment.	Common	Developed by Library	Common	Common
Utilization of Library Materials	Traditional systems of distribution; the development of specialized collections for faculty use, classroom use, central library use, in study al-	Common	Developed by Library	Common	Common

Table 7. Sixth or Seventh Year: Common Core to be Acquired by Each Media Specialists From Each Other Area of Specialization During Either the Sixth or Seventh Year (continued)

COMPETENCY	OBJECTIVE	SPECIALIZATION SUPPLYING COMPETENCY			
		Audiovisual Specialist	School Librarianship	Broadcasting	Instructional Technology
	survey; use of the computer as the basic element in an informational retrieval system.				
Production	A knowledge of the nature, function, capacities, and uses of the technical "tools" of the broadcasting media: microphones, cameras, lighting instruments, switching panels, consoles, recording and play-back units, film and slides chains, etc.—as the "paint, palette, brushes, and canvas" of creative communication through the elements of light and sound in the process of production. This should include camera and performer movements, balances and relationships; shot sequences and picture composition; styles of staging; and the internal and external rhythms of performance, which constitute the form of radio and television communication.	Common	Common	Developed by Broadcasting	Common
Utilization	A knowledge of the various uses of the broadcasting media for informational, educational, and instructional purposes, both on-the-air	Common	Common	Developed by Broadcasting	Common

	and in the classroom. This should include a knowledge of the current educational uses of the media, a knowledge of the results of studies and research in the educational effectiveness of the media, and a knowledge of the various types and forms of educational and instructional programs.				
Management	A knowledge of station and staff organization and operation. This should include space, studio, and equipment design and needs, capital and operating costs, budget control and supervision, personnel and staff requirements, and the development of programing and operating policies and procedures.	Common	Common	Developed by Broadcasting	Common
Programing for Learning	Analysis, design, and development of instructional systems (where system implies multimedia) along with development and try-out of a program.	Common	Common	Common	Developed by Instructional Technology

and aspirations for the future. It is for these reasons that extensive contact with the various areas of the behavioral sciences are required by media specialists.

In addition to man's group and personal behaviors, it is still necessary for the media specialist to be able to translate objectives and purposes into appropriate communication forms. The act of encoding in appropriate language and symbolic forms the appropriate stimuli is really the heart of the whole media development. Sufficient research must be carried on to determine more exactly what type of medium should be used in a certain situation and further, how they should be designed in terms of such things as the structure of the medium and the necessary cues to be used as related to the type of behavioral objectives to be reached. The media specialist should be able to relate himself to those responsible for various instructional roles so that he can give them expert advice in terms of appropriate message design, rather than just the idea that you must "audiovisualize."

The above discussions would indicate that there is a new developing area for preparation of specialists relating to the development and management of the whole broad spectrum of the communication and information sciences, including the full range of media and materials. When media are looked at from this perspective, the lines which divide the various media fields disappear under the demands for the most effective ways changing human behavior and new media specialists emerge.

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II. EDUCATIONAL PROGRAMS FOR THE MEDIA PROFESSION

AUDIOVISUAL SPECIALSTS--William H. Allen
SCHOOL LIBRARIANSHIP--Leslie H. Janke
BROADCASTING--Armand L. Hunter
INSTRUCTIONAL TECHNOLOGY: PROGRAMMED INSTRUCTION AND COMPUTER BUIDED LEARNING--Wendell I. Smith

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EDUCATIONAL PROGRAMS FOR THE MEDIA PROFESSION

AUDIOVISUAL SPECIALIST

--By Dr. William H. Allen, Director of Research, Department of Cinema, University of Southern California

In designing an educational program for the preparation of audiovisual media specialists, several definitional questions arise immediately: Are we preparing "technologists," "policy-makers," "researchers," or "teacher educators"? For what positions? At what educational levels?

Several assumptions must be made as baselines for the development of the program. These assumptions determine the rationale for developing a two-channel preparation program. They are:

1. Programs will be designed for both operational technologists and theoretical policy-makers.
2. The "technologists" will function primarily as administrators or managers of media programs. The "policy-makers" will function primarily at the higher educational levels as teacher educators, researchers, and policy-makers.
3. The 5th year program will concentrate on the training of "technologists," the 6th and 7th year programs on the education of "policy-makers."
4. Some educational experiences are common to both groups of media generalists.

Several problems associated with the task need to be stated. These problems arise from the conflicting philosophies of teacher educators, uncertainty as to the direction of the audiovisual media field, the role of the media specialist-generalist and differences in opinion among media leaders themselves.

For example, the "technologist" vs. "policy-maker" dichotomy itself: George Gerbner has presented a forceful case for the "communication approach" to audiovisual specialist preparation, stating that this approach "makes the nature and role of messages in life and society its central organizing concern," thus giving some "focus and direction to the professionalization of his field." (3) Kenneth Norberg also makes a case for some kind of unifying theoretical structures so as to enable the audiovisual specialist "to know that the theoretical problem exists...and to trace its main implications with regard to decisions involved in his job of instructional 'engineering'." (4) Charles Schuller (5) while recognizing the importance of a theoretical base, presents a pragmatic approach, stressing the operational aspects of the media specialist's preparation. It is A. W. VanderMeer (6) who puts this problem in perspective, when he represents the three primary characteristics of the preparation program as (a) the attainment of technical skills and knowledges associated with the kinds of duties the audiovisual media specialist performs, (b) the acquisition of supportive foundational knowledge in education and psychology, and (c) training in general scholarship. The problem appears to resolve itself in a decision that the media specialist needs to have preparation in more than the routine skills associated with performing his job. A preparation in the theoritical aspects of instructional communication seem to be necessary as well.

The exact nature of this training in theory is still a subject for discussion and, thus, a problem to be faced in designing the preparation program. There is a certain lack of definition in use of terminology (e.g., "learning theory," "communication research," etc.) and a tendency to encompass total disciplines (e.g., "sociology," "cultural anthropology," "psycholinguistics," etc.) as the content for such preparation. Yet those who point out the importance of such coverage fail to make clear the precise functions to be served by including these disciplines in the preparation program. It is imperative that someone accomplish this synthesis and develop an instructional sequence that relates them to the preparation program.

EXPECTED ENTERING COMPETENCIES

The entering candidate will be expected to have a baccalaureate degree, an introductory knowledge of audiovisual education as a result of formal course work or experience, and teacher preparation and experience (or comparable experience for non-teaching candidates). The assumptions made by VanderMeer (6) appear to be sound and could serve as general guidelines for the proposed program:

> "...the academic preparation of the general audiovisual specialist is a graduate rather than an undergraduate program...based on a sound undergraduate program in some aspect of teacher education. If this assumption is granted, it is expected that every candidate will start with a reasonably thorough knowledge of some academic field, a broad foundation of general education, and the rudiments of professional education such as the social and psychological foundations of education, methods of teaching and measurement of learning, and practical teaching experience."

POSITIONS FOR WHICH AUDIOVISUAL SPECIALISTS NEED PREPARATION

As stated above, in general the fifth year graduates will tend to fill positions at the operating level in schools and colleges.

James Brown (1) discusses in detail the media functions at the various service levels. This paper will accept his analysis and integrate my own perceptions of the audiovisual specialist's role to suggest the following categories of job roles for media specialists:

I. Fifth-year program

  A. Administering audiovisual programs in schools (single building coordinator to district level operation) and colleges, thus having a responsibility for all or some of the following:

    1. Routine audiovisual library operation
    2. Supervision of instruction
    3. Production of instructional materials
    4. Budget and finance
    5. Program justification with superiors, peers, and lay groups
    6. Formal inservice education

  B. Preparing for higher degree with intent to be

    1. Administrator of media program in schools or colleges
    2. Teacher of audiovisual courses in college
    3. Researcher in media (although this objective is probably not identified at this time)
    4. Administrator of industrial, organization, or military training programs

  C. Preparing to enter industrial, organization, or military training programs

II. Sixth- and seventh-year program

  A. Administering audiovisual programs to large school districts and colleges, thus having responsibility for all or some of the following, but with wider scope and usually as supervisor over others with direct operational responsibility

    1. Routine audiovisual library operation
    2. Supervision of instruction
    3. Production of instructional materials
    4. Budget and finance

5. Program justification with superiors, peers, and lay groups

6. Formal inservice education

B. College instructor in audiovisual courses

C. Researcher in media (although this objective may not be identified during preparation program)

D. Training specialist in industry, organization, or military programs

It should be remembered that this classification of jobs is somewhat arbitary and that any individual graduate may perform tasks very different from those outlined above.

MINIMUM COMPETENCIES TO BE ACQUIRED BY AUDIOVISUAL SPECIALISTS

The minimum competencies to be acquired will be described and discussed below, organized separately for the fifth year and the sixth-seventh year sequences. Each sequence will present the competencies common to both the "technologist-administrator" and the "instructor-theoretician" and then those competencies unique to each of these groups alone.

The term "fifth year sequence" does not necessarily refer to the fifth year of college study (some states requiring a fifth year for teacher certification), but more precisely to the first year of graduate specialization in audiovisual communication. The sixth and seventh years will similarly designate the second and third years of specialized graduate study.

It should be noted that the competencies included in this program are minimum competencies in the educational media area only. They are not intended to indicate specific courses, although they may be so organized in actual practice.

I. Fifth-year program

The fifth year program (first year of specialized graduate study) would appear to have two major objectives: terminal preparation of administrators of audiovisual communication programs in schools or colleges or preparation for the doctor's degree with a specialization in instructional media. Several of the foundation competencies to be acquired are common to both of these objectives, and some are unique to one or the other. The minimum competencies to be acquired are described below.

A. Foundation competencies common to all graduate programs

The acquisition of competency in these particular areas should give the student a solid foundation in the underlying concepts and the related domains of knowledge directly associated with the field of instructional media and technology.

1. Background foundations

It is expected that this series of experiences would be a sequence of courses or single course utilizing the special knowledges of several instructors. The sequence would attempt to develop the theoretical and conceptual background needed as a foundation for competence in media applications.

a. The psychology of human learning as related to instructional media

This will include the principles of learning, perception, motivation, personality, learner characteristics, etc. The intent of the experience will be to furnish a common background of knowledge and understanding of vocabulary of the field of human learning, a necessary prerequisite for the specialist in educational media. The psychological backgrounds will be related through application to research, theory, and practice in the instructional media in order to draw generalizations relevant to instructional technology.

b. The relationship of other disciplines to instructional media

The acquisition of knowledge about the major principles and generalizations in such disciplines as sociology, social psychology, cultural anthropology, psycholinguistics, language and culture, semantics, and other appropriate fields, as they apply to the design and use of instructional media

c. Overview of the scope of instructional technology

Acquisition of knowledge about the history of media application to instruction, the growth of a technological society, the development of instructional technology, literature of the media field, the trends and directions of the field

d. The elements of experimental design and analysis

An introduction to experimental design, with particular reference to media experimentation, in order to develop an elementary understanding of research methodology and the ability to interpret research information

2. The communication process

Acquisition of knowledge about the communication process in learning, including such contributions as theoretical communication models, theory of meaning and measurement, theory of coding behavior, perception, psycholinguistics, psychology, social psychology, cultural anthropology, information theory, art theory, small group and reference group theory, content analysis, cognitive dissonance, etc.

3. Develop ability to analyze instructional situations and problems in order to make media applications

a. Acquisition of knowledge about the characteristics, advantages, limitations and applications of the different media and instruments of instruction (film, filmstrips, television, programed instruction, multi-media systems, computers, etc.)

b. Relate this media selection and use to the problem of meeting various educational objectives (transmission of factual information, modification of attitudes and opinions, development of skills, etc.)

c. Develop the principles of optimum utilization of instructional techniques, materials, and devices (techniques of classroom use, large group instruction, small group instruction, individual instruction, etc.), in relation to different educational objectives and in the solution of specific media utilization problems.

4. Knowledge of specific production techniques, materials, and devices

Acquisition of manipulative skills in the production of simple instructional materials (such as transparencies, tape recording, televised presentations, 8mm motion pictures, charts, etc.), the operation of instructional devices, and the use of appropriate instructional techniques

B. Additional competencies required of the "technologist-administrator"

1. Principles of media program administration

Acquisition of operational abilities in the operation of audiovisual programs in individual schools, school districts, and colleges. This will include supervision of instruction with media, equipment acquisition, standards and purchase guidelines, architectural requirements.

2. Internship in audiovisual administration

Actual firsthand knowledge of administrative problems through field work and on-the-job training

C. Additional competencies required of the "instructor-theoretician"

The research foundations

Acquisition of knowledge about the research program, methods, and findings in instructional media and related disciplines

II. Sixth- and seventh-year program

A. Common to all graduate programs

1. Principles of message design

Acquisition of knowledge about the principles of visual and audio message structure, how people look at pictures, cues, content of visuals as related learning, etc. Draw upon literature in art, design, psychology of learning, perception, motion picture theory, etc. (2)

2. Utilization of instruments of instruction in relation to instructional systems

Acquisition of knowledge about and development of skills in the integration of all instruments and materials of instruction into instructional systems compatible with various administrative and curricular patterns

3. Computer-based instruction

Develop knowledge of computer languages, the elements of computer operation and programing, the techniques of structuring subject matter for adaptation to computer-based instruction, and other educational problems

4. Theoretical problems in educational media

   Study of communication theory, communication and learning models, theories of perception, etc.

B. Specialized experiences

1. Advanced research methodology in instructional media

   Purpose to develop minimum competencies in research techniques and methods in relation to educational media. Generation of researchable hypotheses. Proposal preparation and reporting.

2. Problems in audiovisual administration

   Practice in solving typical current and possible future problems in audiovisual management, finance, supervision, public relations, production, evaluation, and utilization.

3. Specialized production techniques determined by special interests

   Intensive study of uniquely instructional and persuasive aspects of materials production (message design) of various kinds: motion pictures, television, filmstrips, graphics, programed instruction, etc.

MINIMUM AUDIOVISUAL COMPETENCIES FOR OTHER SPECIALISTS

The media generalist having training in specialties other than audiovisual education would nevertheless be expected to perform duties and possess skills of an audiovisual nature. Therefore, this individual should attain certain competencies in background foundations of media theory, research, and human learning, in media program management, and in media design and production. The following competencies to be achieved in audiovisual instruction appear to meet this requirement:

1. Background foundations (IA1 above)
2. Ability to analyze instructional situations for media applications (IA3 above)
3. Principles of media program administration (IB1 above)
4. Knowledge of specific production techniques, materials, and devices (IA4 above)
5. The communication process (IA2 above).

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EDUCATIONAL PROGRAMS FOR THE MEDIA PROFESSION

SCHOOL LIBRARIANSHIP

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INTRODUCTION

The art of communicating is as old as man himself. Archeologists and anthropologists can prove that even before living beings developed verbals, some method or sign was used to transmit messages from one being to another. Through the centuries, as man developed a more involved and complicated society, he found it necessary to improve his methods of contact with others who were a part of his community. However, the communicative techniques remained simple until the development of our technological culture of the recent century. The art of communicating was one of the very first to be characterized by a high degree of scientific sophistication. Applications of the technology have come to the field through a series of inventions, methods and machines that have culminated in what is now rather casually referred to as mass communications. This whole revolution of change has come through a succession of tidal waves that really all began with Gutenberg and his movable type, which prompted the need for cheap paper, the web-press, electro-plating and Mergenthaler's linotype machine. Add to this, the work of Edison on his vitascope, Eastman's improvement on film, Edison's further discovering that sound could be stored in foil and wax, Lee De Forest's invention of the vacuum tube, and the final improvements on the cathode ray tube, and we find ourselves faced with the staggering problem of how we are going to best evaluate, utilize and preserve this ever-increasing amount of communications materials.

The greatest concerns in the proper utilization of these materials have come from the American school teacher and librarian who have found that it is no longer possible to be a "two-by-four teacher," one who restricts herself to the two covers of the textbook and four walls of her classroom, or to be a librarian who serves only as a custodian of a book collection.

Through the efforts of some pioneering American educators, including school librarians who have been able to adopt the concept that the carrier of knowledge best adapted to solve the problem is the one to be used regardless of format, progress has been made in changing the function of the traditional school library. The progress has been slow--held back by the same variety of factors that have kept education generally from moving ahead at the same pace as business and industry. In some situations the reason for the lack of change is to be found in the philosophy that shapes the school, in teaching methods that require nothing more than textbooks, or in extremely poor physical settings caused by meager financial support. In other cases little change has come in the traditional school library because the librarian has not been convinced that content can be provided to boys and girls in many different forms and that the means is secondary to the result. This reluctance to accept such new items as films, tapes, and recordings, with the same enthusiasm as books, results primarily from a traditional type of education for librarianship that has tended to stress the idea that "a picture is not worth a thousand words."

Before real leadership can be expected from the school librarian in making the library a place which includes all carriers of knowledge, a new dynamic concept needs to be instilled in the thinking of every trainee who indicates an interest in entering the field of school librarianship. Hence, a new kind of professional training will be required to provide leadership in design, implementation, and evaluation of programs of education which make the fullest use of new media. The functions performed by these librarians, or whatever title is bestowed, and the resources they bring to the job will be among the essential determinants of whether there is success or failure in educating the young Americans of this century. It is hoped that the guidelines for training school-media specialists established in this paper will be sufficiently comprehensive to give the recipient the foundations necessary to appraise all areas of communication in terms of what they can do to enhance learning opportunities for all who need to be educated. Although it is hoped that enthusiasm for the new will be instilled, it is also hoped that loyalty to the old will not be damaged. If the school library is to become the real learning center, prejudices and complacent attitudes must give way to a broadened point of view that will make the school library a true academic enterprise.

The technology prompting the development of the many new modes of communication that are now influencing the role of the traditional school library and librarian has also resulted in other changes that are to give rise to a re-evaluation of the services the school library and librarian need to provide. The coming of the space age and the ever-increasing need for depth understanding in the fields of science and mathematics have also increased the demand for greater understanding in the other academic areas. In the complexity of almost every problem it is necessary to develop an inter-relation of knowledge. As a result our school curricula starting at the very lowest elementary grade, have put added stress on solid academic understandings. New mathematical concepts, foreign language instruction and depth study in history and geography are now becoming part of the elementary student's daily activity. This new concentration on the academic, advocated by Conant and others, and the restructuring of state curriculum plans, such as those recently adapted in California, throw a new challenge to the school librarian. He must now be knowledgeable himself in the academic areas and must also provide the resource material needed to back up the enriched curriculum. No longer are the traditional encyclopedia sets and a few basic non-fiction titles sufficient to give the reinforcement needed. Failure of the school library to keep pace with the curriculum is evidenced by the present problem faced by public libraries which now find themselves attempting to supply resources for student assignments requiring materials traditionally not part of a school library collection. School librarians must be trained to realize the need for the cross-media approach and to also re-assess the quantity and quality of the traditional book resources. Since the early days of school libraries, it has been customary to discard periodicals at the end of five years. In many instances, the five-year limit was used due to lack of space. However, many librarians justified disposal of back issues on the assumption that students rarely needed such material and that within five years the information in the periodicals was available in book form. This example is typical of the shallow approach so often taken by teachers and librarians, and perhaps accounts for part of the criticism often leveled at professional education. If boys and girls are to be challenged to undertake independent study, it is necessary for the student to have the needed resource material. When could a student studying World War II find more valuable information than in the contemporary accounts written in the magazines? Too often, however, the periodicals are not available and the student has to turn to a second-hand interpretation by a retired general or admiral.

New teaching techniques and new curriculum organization are also making it necessary for school librarians to readjust some of the traditional patterns of library organization. J. Lloyd Trump and others who have advocated the use of team teaching, creative workshops and laboratories for individual students, make it necessary for librarians to examine carefully the advantages and disadvantages of the centralized school library. With the encouragement of individualized study, and with the school day so organized that the student has little free time, the large centralized library fails to meet the real need of the student. Study carrels supplied with all media, or study centers on some form of subject grouping such as science, social science, and humanities may be the most satisfactory way to provide the materials in the form and at the time needed.

The complexity of twentieth-century technology requires that preparations for becoming a school librarian must provide

1. a background of information in the utilization of all the communication media,
2. greater knowledge of the academic fields in order to encourage and support depth study on the part of students, and
3. guidelines for modifying the role of school librarianship to adjust to the changes taking place in the administration, organization and physical facilities of the public schools.

Although the majority of school librarians in the United States are still working primarily with the traditional library materials--books, phamphlets, and other items of print--strides have been made to expand the resources at the disposal of the librarian to include all the media of communication. The librarian's responsibility for the handling and for the direction in utilization of the whole realm of materials varies greatly, from the individual school situation in which he may be completely in charge, to the large district situation in which he coordinates the book phase of the program cooperatively with other members of the team such as the audiovisual, radio and television specialists. Much has been said and written concerning the extent the librarian should be involved in the administration of all the media in a school, but, in most actual situations, the complete "unity of materials" concept has not been reached. It would appear likely that the metamorphosis of most book-oriented libraries into "all media" libraries will not come until librarians trained as media specialists (or whatever title is finally applied to them) are available to direct the change. This responsibility must rest in the hands of the educational institutions offering librarianship training programs. Unfortunately, the professional schools of librarianship have not assumed the needed leadership in training personnel to assume the responsibility of handling all types of instructional material. Some strides have been made with the offering of related courses in audiovisual and in the establishment of a course or two in administration or in the selection of non-book materials. However, according to a 1952 study by Lieberman(1) and more recently by Lohrer's survey(2), the developments are fragmentary and not well defined in any of the leading librarianship training institutions.

Even though the library science schools have not provided personnel to handle instructional materials programs, such programs have developed at almost all levels of education. As early as the 1940's the California Legislature passed legislation providing for the County Service Fund which, along with State support for guidance and health service, permitted the County Superintendent of Schools to set up audiovisual and library services. In most cases these services were combined into instructional materials centers, but were usually directed by persons who lacked background in both the audiovisual and print areas. Since the legislation required that the person assigned be trained as a librarian, many book-oriented librarians broadened their background by trial and error on-the-job experience. Even today persons trained to assume the responsibility for all materials of instruction in the California counties are not available.

Further evidence that a need for trained media specialists exists is shown in the study made by Gaver(3) in 1962 in which she reported that of 142 Rutgers school librarianship graduates 60 to 70 per cent were either totally or partially responsible for the operation of a materials center.

Probably the greatest impetus to the establishing of instructional materials centers in schools came in 1960 with the publication of the "Standards For School Library Programs" by the American Association of School Librarians(4). More than 20 affiliated or closely related educational organizations assisted in preparing this publication. These new standards were based on the premise that the school library should serve the school as a center for instructional materials and listed all of the media of communication as vital instruments in the teaching and learning process. The philosophy upon which the AASL standards are based was developed as early as 1956 when a joint committee of the American Association of School Librarians and the Department of Audio-Visual Instruction formulated the basic principles.

The AASL document has influenced the development of the instructional materials concept in several ways. It has prompted a number of state library associations to revise their state school library standards. California is now beginning a three-year program for the implementation of new state standards which will promote the unity of materials approach. Even Florida, which has pioneered in the establishment of certification for instructional materials personnel, has benefited from the national school library association statement and now has 82 per cent of the schools staffed by full-time persons.

Undoubtedly, the philosophy expressed by AASL has prompted the publication of a stream of literature emphasizing the instructional materials approach. Textbooks by Brown, Harcleroad and Lewi ; Swarthout; Shores; and others, along with innumerable periodical articles, brochures and pamphlets, have all promoted the unity-of-materials point of view. In some cases, textbooks still carrying the titles "audiovisual" have, upon careful examination, proved to be geared to the needs of the person working with all the types of educational media.

The development of instructional materials programs has undoubtedly been handicapped by the lack of properly trained personnel. The inadequacy of school library facilities has also been a deterrent to the establishment of multi-media centers. Although architects and school administrators have long described the library as the "heart of the school" the facility itself rarely was adequate to house the traditional book collection and also provide the needed space for proper utilization. In isolated cases, quarters were designed with an adjoining storeroom, often without windows so it could be called a preview room, which was designated as the "audiovisual center." In most situations, however, no real thought had been given to the combined use of these materials. Some hopeful signs are beginning to develop. The Educational Facilities Laboratories, Inc., an organization established by the Ford Foundation, has recently published a document on library planning that will certainly offer architects an opportunity to see what a space-age school library should include. The foreword statement of the publication indicates that the design suggested is such that "the new educational concepts, technological media, and learning materials can be intergrated with the older carriers of knowledge; in which the environment will encourage learning rather than offer resistance to it, proffer information rather than ration it, appeal to the reluctant learner as well as the avid one." (5) If it is possible to train personnel and build quarters to carry out the goals of the above statement, it is without doubt that America's youth will be better educated. The start will need to come with the training of personnel able to offer leadership in developing improved facilities.

In the remainder of this paper it is hoped the guidelines suggested will provide the background necessary to equip school librarians or school media specialists, for effective utilization of all the educational media.

PROGRAM OF TRAINING

The Undergraduate Level

Liberal Arts Background

Almost every document that has been written on the subject of education for librarianship carries the assumption that librarians, regardless of the field in which they plan to work, need to have a basic education founded on a baccalaureate program of strong liberal arts preparation. This premise becomes more and more valid as the world of knowledge becomes increasingly more involved. Today's librarians, especially those serving the public schools, need to have an encyclopedic reservoir of information to match the ever-growing complexity of the American school curriculum. Depth in a variety of academic subject fields is perhaps even more essential at the school level than in other areas of the profession, since, in most cases, the school library is staffed by only one, or possibly two librarians, who must serve faculty and students pursuing the full range of subject matter covered in a public school course of study. Librarians employed in large public, college, or university libraries, find it possible to work in specialized subject areas, or in specializations within the administrative structure of the library. Although a strong liberal arts foundation is vital for all librarians, it assumes even greater importance for those in the public schools.

The consistent stand of the accrediting agencies of the American Library Association(6) that a very minimum of professional work in librarianship be taken at the undergraduate level is well taken since it is essential that every possible semester hour during the first four-year college career be devoted to the academic disciplines. Obviously, the school librarian cannot become an expert in every subject area taught in the public schools, but he does need to have at least a speaking acquaintance with the terminology and literature in each field.

Foreign Languages

Although the need for background in foreign languages has always been recognized in librarianship education programs, the language requirement has often not been stressed in preparing librarians for work in public schools. This relaxation of the language requirement was usually justified by the fact that the school librarian was not a researcher and that the materials with which he would be working were not archival types and that he probably wouldn't need to select or utilize documents in a foreign language. This assumption is certainly no longer valid since foreign languages have now become a standard part of most public school programs. In California, for example, instruction in some type of foreign language will be a required part of the elementary school course of study after 1965. Certainly the school librarian will need to be conversant with modern foreign languages if he is to serve his clientele with the needed materials of learning, which in the area of foreign language, include all the media of communication since much language instruction is accomplished through the use of projected and audio materials. Evidence of the wide use of audio materials can be seen in the tremendous development of language laboratory facilities and materials which have been stimulated by provisions in the National Defense Education Act.

Teacher Education

The requirement for a strong academic background is unquestioned. But, in the zeal to provide this background, it is vitally important that the need for some training in the field of teaching is not overlooked. Fundamentally, the school librarian is a teacher, especially when rendering the type of library service provided in the elementary school. Many elementary school librarians spend a good part of their time in library instruction, storytelling, and other types of situations in which some knowledge of teaching techniques is essential. Although the teaching function of the librarian tends to decrease at the junior high, high school, and junior college levels, it is still important that the school librarian have some conception of what is being done in the classroom in order that he may satisfactorily supply the materials needed by students without conflict with the foundations laid by the classroom teacher.

Psychology of Learning. The above suggestion that school librarians have a knowledge of teaching is not to be construed as advocacy of a long sequence of repetitious professional course work in educational methods. It seems essential, however, that some knowledge of the psychological reasons of why and how children learn, how they develop reading, viewing, and listening habits, are needed if the librarian is going to efficiently supply and utilize communication materials to boys and girls. The materials covered at this level would be introductory to a more intense examination of the theories of learning during the fifth- and sixth-year programs.

Curriculum. A basic understanding of curriculum organization, also is certainly essential if the librarian is to be a useful member of the team charged with the responsibility of educating youth. Developing the learning activities of the student along with the classroom teacher should be the primary role of the school librarian. Anticipation of teacher and student needs can be achieved only if the librarian knows how the curriculum has been developed and understands the ultimate goals expected as a result of this organization.

Measurement. The librarian's participation in the assessment of pupil performance is equally as important as that of the classroom teacher and other members of the school staff. In order to determine that the educational program provides the materials and opportunities commensurate with the student's potential for growth, all school personnel, including the librarian, must be familiar with the techniques and instruments of measurement that will provide a basis for this determination.

Internship. Perhaps the background needed by the librarian may adequately be secured by practice-teaching, internship, or field work programs as advocated by the latest Conant(7) study. An internship period, under the direction of a college supervisor of the caliber described by Conant as a "clinical professor," and performed with a master teacher, would certainly be a most valuable experience that should precede entry into the professional librarianship training sequence. However, it is questionable whether time should be taken away from the academic study of the baccalaureate program to secure this teaching background. Undoubtedly, the ideal program would be one in which the internship time followed immediately upon completion of the undergraduate degree, and before the start of the fifth-year librarianship training sequence. Although a plan of this type seems ideal, it would delay entry into the fifth-year program, further extending the eventual entry of the school librarian into his full-time professional status in the schools. Extended programs such as this are accepted in the field of medicine and law, but doubt arises concerning the problem of recruitment if the training period is too long.

Communication Theory

In preparing an individual for entry into the educational media field, it would seem essential that at some phase of the undergraduate program, probably in the senior year, the student should be introduced to the widespread implications of mass communications. Traditionally, in librarianship training programs, the student has been introduced into the profession with a course usually labeled "principles of librarianship," or introduction to librarianship." This course, normally confined to the librarian's role with printed matter, could well be broadened in scope to give a picture of how the various media have become so interwoven in our lives that it is impossible to imagine life without them, and that the growth of public education has been parallel to the growth of mass communications in America. An insight into the whole field prior to the student's entry into an internship or field study situation in a public school would provide the individual with a basis for evaluating the role of communication media in the school program. Obviously, the information covered at this level would be only introductory. Later in the fifth and sixth year programs greater depth study in the theory of communication would be necessary, including an analysis of what goes into the production and perception of messages, the design of messages and message systems as they apply to both pictorial and verbal symbols.

Fifth-Year Study

In training personnel for the educational media professions in the public schools, it is necessary to recognize that the librarian, or media specialist, will need to function at several levels:

1. the single school;

2. the small school district, having a limited number of attendance centers;

3. the large school district or county level, with an extensive number of individual units;

4. colleges and universities; and

5. state departments of education.

This study, at least for the fifth-year level of work, will be limited primarily to the consideration of the type of training for the "specialist" who will handle the media responsibilities in the first two categories listed above. At the large district, college, university and state levels, additional training in administrative procedures will be required as part of sixth- and seventh-year preparations, and will require personnel who are "generalists" as well as "specialist."(8)

The Single School

The librarian within an individual school would, under ideal conditions, be expected to administer, for students and faculty, a comprehensive educational media center, or library, which should include basic and supplementary textbooks, reference and source books, films, filmstrips, slides, microfilms and microcards, large transparencies, periodicals and newspapers, enrichment reading (fiction and non-fiction), vertical file materials, maps and globes, art prints and pictures, teaching kits, programed materials (books, booklets, reels), a tape and disk recordings collection, professional library materials (guides, curriculum units, specimen examinations, etc.), a community information resources file, models, exhibits, and specimens. In addition, there should be supplies of materials for teachers and students to use in processing their own instructional materials (art supplies, stencils, blank tapes, etc.). Perhaps in the near future it will also contain videotapes and other as yet uninvented or unperfected media having applicability to instructional requirements.(8)

The instructional equipment which should be available for the above media within the single school include 8mm and 16mm sound motion picture projectors, filmstrip projectors, overhead transparency projectors, tape recorders (including playback-recorder facilities in language or self-instruction laboratories), disk playbacks, radio receivers, television receivers, public address systems, opaque projectors, still cameras, microfilm and/or microcard readers, microprojectors, projection screens, duplicating machines (spirit, thermal, photocopy, ink types), individual viewers, teaching machines (including computer-controlled devices), student respones systems, tachistoscopic and other timed teaching devices, display boards and equipment, drymount presses, picture trimmers and darkroom facilities, videotape recorders, and closed-circuit television facilities.(8)

The Small District

In a school district with attendance centers of limited enrollment, the materials and equipment listed above might well be centralized at a district center and delivered to the individual school in the quantity or variety needed. In larger district situations, the central library might serve the district with supplemental services which would be needed to enhance the materials in an individual school. These might include: loaning of limited use or expensive book sets or 16mm films; making available pieces of equipment too costly to be provided to each school; or supplying instructional materials to individual schools by means of a district closed-circuit television system.

Areas To Be Covered in Fifth-Year

In training the specialist, or librarian, to service the vast quantity of educational materials itemized above, several basic areas must be included in the fifth-year librarianship education sequence.

Administration. To perform the services that are necessary to achieve maximum value from the great amount of material placed in the hands of the school or district media specialist, some basic administrative principles must be included in the fifth-year curriculum. Some of the items that need to be emphasized in a basic administration course are these:

1. budget and school financing practices at all levels: school, district, county, and state;
2. personnel relationships especially those with clerical assistants (In large size schools and at the district level more than one professional person may be on staff. However, in most situations the relationships will be with clerical assisting as volunteers, as students in a credit course, or for pay.);
3. operational procedures, such as systems for handling textbooks, scheduling of audiovisual equipment, checking out of all types of material, centralization or decentralization of the materials and equipment within the school or district, the location of professional materials for faculty, training of clerical or student assistants to operate audiovisual equipment or materials circulation systems; and
4. methods of working with faculty and staff, such as studying the school curricular organization in order to recommend ways of improving instruction through appropriate applications of educational media, providing expert assistance in evaluation of proper media to achieve the teacher's objectives, studying of plant facilities in order to recommend changes that will

improve the learning climate, enriching the school or district collection of materials with outside resources when necessary, making materials readily available when needed by teachers.

The principles of administration are best clarified by seeing them in operation. Therefore, any course in administration should provide the student with an opportunity to observe the methods firsthand. The value of an internship, as part of, or at the conclusion of an administration course, is most significant.

Selection. Maintaining qualitative standards for the selection of materials is essential in any school library or instructional materials center. Proper utilization will depend partially upon the quantity of materials available, but the most significant factor is the quality of the media--quality not only in physical format and in subject content, but in relationship to the curriculum being served. The area of selection becomes a more complex one with each passing month since the quantity of materials in all the media fields is multiplying in fantastic numbers.

Training in the field of selection will need to include background information about:

1. printed materials. In the world of print alone the librarian finds it impossible to examine and evaluate individual items, a task which at one time was possible for an individual working in a small library. Today, when a person responsible for all media must make selections, it is impossible to give personal attention to each item. Under these circumstances it is necessary for the media director to know how to select materials by the use of reviews and evaluations by experts in each specialization, and to make use of the selection aids that are available.

Since the librarian, at either the school or small district level, will be expected to develop collections of non-print materials, it is necessary that his librarianship training include enough information about such items as films, recordings, programed materials, and videotapes to enable him to develop criteria to be used in selection. In order to develop usable criteria, a basic knowledge of each type of material, along with the terminology of the field, is a necessary part of the background.

2. programed materials. In this area it is essential that the librarian have basic knowledge of what is programed instruction, what makes up a good program, and how programed material can fit into the context of the educational system in which he works. Attempting to train the librarian to become a skilled programer would seem unnecessary at the school level of operation. The essential function on the part of the librarian at the school or district level is to be able to select intelligently the programed materials that are available, and perhaps to direct faculty or staff interested in developing

perhaps to direct faculty or staff interested in developing programs to reliable sources of instruction on program construction.

3. educational television. As with programed material, the school librarian's main interest in educational television is how it can be used as another one of the media in supplying teacher and student with raw material necessary to enrich their academic pursuits. To enable the librarian to provide this service he must know the uses and the effects of the medium and how these uses and effects can fit into the total pattern of resource materials. Knowledge of available materials, or how the materials can be made available, is another essential in his background. Again, as in programed material, it would not seem necessary for the librarian to become a skilled director, script writer, or production technician. As director of an instructional materials program in a large school district having its own television facilities, such skills might well be essential.

4. audiovisual. In the preceding information on programed materials and educational television, it was indicated that the essential knowledge of the librarian in these two areas was to be directed primarily to that needed for proper selection and utilization of the existing materials. In considering audiovisual materials, the background will need to be broader and encompass some knowledge of production in addition to information on how to evaluate, select and utilize such items as films, recordings and teaching devices. Elaboration of the needed production skills will follow in another part of this paper.

Any course or courses concerned with selection offered during the fifth-year program will need to cover evaluation theory and practice, with emphasis upon defining curricular goals, using and evaluating the contributions of educational media in achieving these goals, and establishing and applying criteria in selecting and using educational media.

Reference. The word "reference" in this paper encompasses the whole reason for having a school materials center. Any time and in any way that the librarian utilizes the materials in the collection, "reference" service is being given. This might be the answer to a single factual question found in an almanac, or it might be the consultation with a history teacher on the films, tapes and television programs that could be used to summarize the accomplishments of a recent presidential administration. Efficient reference service comes when the librarian is able to place the proper material in the hands of the questioner without delay.

It is in "reference" service that the materials specialist can look for assistance from the computers and the other various forms of documentation devices. Although the librarian in a public school operation will probably not have access to an elaborate computer system, it is necessary that the librarian have a basic understanding of the capabilities of machines in storing, searching, reproducing, and transmitting information. In the immediate years ahead, it is likely that most school systems will have machine operations of some type within the district--punched card devices are already common and, in some instances, are being utilized by librarians for the printing-out of bibliographies and other needed selected sets of data.

The area of reference appears to be one in which new techniques of instruction might well be utilized. Many traditional reference courses still include hours of lecture, including the display of sources at the front of the classroom. In most situations the student is not able to see what is being shown and finds it necessary to personally examine the item at a later time. The utilization of closed-circuit television in the classroom where the television camera brings the page to the student in readable form is certainly worth experimentation. The use of overhead transparency sets on individual items would also provide a more adequate sample for classroom demonstration purposes. In addition, the transparencies, with perhaps the use of overlays, could be used later by the student for individual study when the source itself might not be available.

Technical Processes. Librarians have, from the earliest days of the profession, been noted for their ability to organize materials in efficient and usable form. In fact, some librarians have been "carried away" by the organization phase and have been so busy organizing they have neglected to give service, which is their main reason for being. However, the traditional systems of organizing book materials have stood the tests of time. As proof, one has only to look at Melvil Dewey's Decimal Classification System, devised in the 1800's which is still flexible enough to provide numbers for the thousands of new subjects that have developed since the death of Dewey.

The need to organize materials is unquestioned. It becomes more essential as the materials collection grows in size and in scope, and, since the traditional systems such as the Dewey, the Library of Congress system and others, have proven workable, they will need to be taught to all librarians. Adaptations of these systems and applications of other plans will also need to be covered.

Classifying, or some other plan for the systematic organization of materials, is essential for proper utilization. However, no matter how well the materials are organized, especially as the collection grows in size, they are not usable unless some type of efficient index or directory brings the materials and the users together. The traditional card catalog has served, and continues to serve, this function in most American libraries. Therefore, teaching the skills of cataloging will need to be continued. But fortunately the new technology of the past several years has made it possible to prepare indexes to instructional materials in much more efficient ways. The availability of printed cards and the services of professional cataloging agencies make it possible for the school librarian to spend much less time on classification and cataloging chores. Many libraries are also utilizing punched card automated devices for the preparation of book type catalogs that can be revised and printed-out in a matter of minutes.

The assists now available in the area of cataloging make it possible to put less emphasis on this phase of library education. Since cataloging and classification are primarily skill areas, it seems logical that most of the needed information in these specialties could be secured by individual laboratory study on the part of the students. Here seems to be an ideal place for the use of teaching machines and properly prepared programed materials, or, as suggested by Stone(9), the use of study alcoves equipped with tapes, slides, film loops and other telemated devices.

Production of Materials. The need for the school librarian to be well rounded in the skills required for the proper selection and utilization of all varieties of ready-made instructional materials is well recognized. Even though producers of instructional materials have done a most thorough job in supplying almost every conceivable curriculum area with materials, it is still often necessary to supply the teacher or student with a piece of material that will satisfy a need not covered by any ready-made item. When such a ready-made material is not available, it is necessary for the school librarian to be able to assist the patron in the production of such media. At the school or district level, the extent to which this production can be carried out will have to be limited by the facilities and staff available. In most school or small district situations, a staff of graphic artists will not be available to carry out complicated productions. Brown(8), in his list of equipment that should be available in a materials center in a single school (see page 55), defines the limits to which the production of materials can be carried.

The preparation of projected materials will need to be restricted to the production of such items as:

(1) 3 1/4" x 4" glass slides;

(2) 2" x 2" slides; and

(3) overhead transparencies, made by direct work on acetate or by use of Ozalid films, Thermofax, or other methods not requiring elaborate photographic facilities.

Preparation of materials for quantity use such as made possible by duplicating machines of various kinds--spirit, mimeo, thermal, etc.--could certainly be expected to be a part of the production service available in a school library.

Reproducing and recording of audio materials on tape is another one of the skills the school librarian would certainly be expected to acquire.

At the district level, all of the above services would certainly be offered, as well as more refined photographic methods, since it would seem justifiable to include photographic darkroom facilities for use of teachers and students of several attendance centers. The district center might well include provisions for the development of graphic materials requiring the use of lettering devices, dry mounting and laminating equipment.

Depth skills in the writing of programed materials or in writing television scripts, or in the production of television graphics, would seem to be beyond the limits of services expected of the instructional materials specialist in a single school or district. Activities such as these would more likely be carried on in large district operations or at the college and university levels. However, as mentioned previously in this paper, the school-level librarian should have enough background in the educational television and programed instruction fields to understand the terminology, to be able to apply uses of the medium for the instructional program, and, in the case of programed material, to be able to recognize the factors to which consideration must be given when evaluating a ready-made program for purchase.

Communication Theory. The fifth-year educational program for the school librarian who is expected to assume the role of a media specialist should include background in communication theory. The student needs to understand the interaction that results from message transmission, and how communication and human learning are influenced by the biological, social and cultural influences of man. A study of the communication process would also include information of what goes into the production and perception of messages, as well as an interpretation of the symbols that make up the structure of messages and message systems. This message design study should include an analysis of the adequacy, validity, clarity, believability and general effectiveness of the structure.

Consideration needs to be given also to:

(1) the development of communication systems in society, including an historical view of the evolution of such systems, and a comparative study of communication systems in different societies;

(2) the relationship of communication systems to our social and educational processes;

(3) the contributions of communication processes to knowledge, teaching and learning; and

(4) the influences on the communication system by the controls and structural organization of the classroom, the curriculum, and the overall educational aims and goals of the school program.

Post Fifth-Year Study

The fifth-year or master's degree level program discussed in the previous section of this paper was confined primarily to the individual who would assume the instructional materials or school librarian function in the individual school or in a small district operation. Training beyond the fifth-year should provide those competencies needed to administer the media program in larger school districts, counties, colleges, universities or perhaps at regional or state levels. All concepts introduced during the sixth and seventh year training period presuppose competence in all the skills expected of the person completing the master's degree or fifth-year program.

Since the administration of educational media programs in more complex service areas will involve greater amounts of material and greater numbers of student and teacher patrons, the need for professional and clerical personnel increases. With an enlarged staff come the complexities of staff relationships, the delegation of responsibilities and performance evaluation. No longer can the administrator maintain the specialist role played in a small operation, but now must assume the position of generalist, delegating to other professional staff members responsibilities for the specific media areas.

To fully analyze the objectives of the media program, and to envisage its relationship to the total educational program, the administrator must understand the nature of the job to be done. This understanding cannot be realized unless the administrator has a basic knowledge of the specialized areas within the scope of operation.

Although assuming a good foundation in librarianship during the fifth year of specialization in this area, it would seem necessary for the sixth-year training to include additional study in the application of modern data processing, including methods of library system design, equipment evaluation and selection, and computer programing. This area of study will probably need to involve a period of internship to guarantee a true understanding of the implications.

Persons assuming administrative positions in more complex educational media programs will need to develop understandings essential to provide materials and services which are: (1) supplemental, (2) experimental and (3) supervisory.(8)

In most situations the larger unit materials operation will need to provide supplementary service planned to strengthen operations in smaller units within a school system. These added services may range from the supplying of enrichment book materials not needed by every school on a regular basis, to the providing of expensive, seldom used equipment that could not justifiably be purchased for deposit in separate attendance centers.

To supply the supplemental service with efficiency, the administrator must have a thorough understanding of the media program objectives, the relationship of these objectives to the total educational pattern of the district, and the ways in which this pattern is related to teachers and students, to the curriculum, to the administration and to the community. Not only should the supplementary services be provided to fit the established need, but, in addition, there should come leadership in new and better methods based upon pertinent research and experimentation. To adequately handle the supervisory function, the sixth-year training program of the media generalist should provide for advanced work in the field of professional education, including research in the psychology of learning, programs of curriculum development, and problems relating to personnel, finance, law and supervision.

Within the scope of supplemental services at the large district or college level will come the production of materials too complex for the type of limited facilities that could be justified in a single school or small district operation. Therefore, the sixth-year training sequence will need to include the development of adequate competence in production to give the administrator-generalist enough background to be able to determine the need for the materials to be produced. To discover this need the individual must be prepared to analyze the research that has been carried on relative to the use of materials as they affect the learning processes. It is also vital that the administrator be equipped to supervise the staff specialists who will be expected to carry out the production assignments. The range of competencies should include at least the following:

(1) graphic production, including: visualization techniques, layout procedures, reproduction methods;

(2) audio production, to include: scripting, editing, methods of recording;

(3) 16mm and 8mm motion picture production, including: applications, scripting, photographing, editing, sound integration;

(4) television production, covering such phases as: preparation of scripts, editing equipment requirements and costs, personnel needs, communication laws and regulations;

(5) programed materials production, including: preparation of objectives, programing techniques, knowledge of machinery needed to implement programs;

(6) writing and editing, in areas dealing with the art of educational writing as applied to texts, manuals, guides, kits, pamphlets, charts; editing; printing and other reproduction techniques; and binding.(10)

Another phase in the operation of multi-center or college educational media programs is related to the experimental services which may need to be carried out or directed by the materials administrator and his staff. Opportunities are usually available within the school system for controlled tryouts of materials, equipment and services. Specialists on the instructional materials center staff, along with the school's instructional supervisors, department heads, and classroom teaching specialists, should cooperate in carrying out experimental projects. The educational media center can well serve as the focal point for these research studies. To provide the necessary leadership, the center director needs to have a knowledgeable background of such factors as: how research should be implemented; previous research that has been carried out in specific fields of education; and the relationship of instructional materials to the learning process. At the sixth-year level of training it would be assumed that the center administrator would serve more as a catalyst for instigating research among the specialists on the center staff or within the school or college system, rather than carrying on the research himself. Doctoral level study would in most cases be necessary before the center administrator could assume an authoritative role in the research program.

The third major phase of center operation with which the administrator must be familiar relates to the supervisory function--the service which seeks out instances of good utilization, discerns problems and areas needing improvement or emphasis, and attempts whenever possible to aid in improving instruction.

To provide leadership in this function, the trainee must be familiar with techniques for promoting increased and improved utilization of educational media through cooperative endeavors with supervisory staff members who have specific field responsibilities in the curriculum disciplines. Among the skills needed in the sixth-year course of study to carry out this promotion would be those related to the planning and implementing of inservice workshops, seminars or extension classes; as well as those associated with the publication of guides, brochures and audiovisual materials to supplement the other activities. At the college level the media center administrator might also be expected to provide regular campus and extension courses for preservice and inservice teachers, in addition to the services and direction given to college faculty.

Doctoral Level Study

Doctoral training needs to be designed for those persons qualified to assume positions of leadership. These candidates would include those who are, or will become, involved in graduate level teaching and research, as well as those who are to hold administrative positions having wide policy-making responsibilities.

Programs at this advanced level must be planned in a very flexible manner in order to fit the needs and match the competencies already mastered by the individual candidate. In most cases, it could be assumed that enrollees at this stage should have had on-the-job experience in some phase of an educational media program and would have had a prior foundation in general and educational psychology, communication and perception theory, and some research methodology. Some additional depth in educational psychology and learning theory should probably be required at the initiation of a program of advanced study, both to serve as a refresher for the student who may have been in the field for an extended period, or to compensate any lack the student may have had in previous study.(11)

The ability to do research on an independent study basis will need to be a characteristic of the doctoral candidate since a good part of this advanced program will be involved with experimental, developmental, documentary and survey research activities as they relate to the theoretical and practical applications of educational media to problems of education.

Since students pursuing the advanced programs will be either specialists in one of the media areas, or generalists who have a broad yet perhaps not a depth knowledge, in any one of the media, the doctoral study will need to provide opportunities for both. Field study situations in which the student may gather the needed source materials for research studies will need to be provided. Carefully chosen field experiences should enable the specialist to study the broader implications of the total materials concept, while the generalist can secure depth knowledge in individual phases of the media.

Research studies should include problems of media management, especially as they relate to the staffing and supervisory aspects since most administrators holding the doctorate will assume top administrative positions in operations of large size and complexity which demand large staff organizations. Problems related to the new educational technology such as systems analysis, computer-based instructional procedures, electronic distribution systems and other frontier developments will also need to be part of the knowledge of the doctoral candidate.

LIBRARIANSHIP COMPETENCIES NEEDED BY PROFESSIONAL PERSONNEL IN RELATED MEDIA FIELDS

Earlier in this paper a fifth-year program of study was recommended for the person who wished to become a specialist in the field of librarianship. In developing this program an attempt was made to provide the librarian with enough background in the related materials fields to be able to handle all of the educational media in an administrative situation in which only one professional person would be employed, or in more complex operations where the librarian would be a member of the team along with an audiovisual specialist, an educational television specialist and a programed instruction specialist, all under a central administrator.

Since the librarian would be expected to be knowledgeable in the non-book media it would be logical to assume that the other specialists should also have a general understanding of some of the basic areas of librarianship. At the sixth-year level, when the specialist is developing a broadened approach to the entire materials field, a study of several librarianship principles should be provided.

The areas of library science that would seem important to the non-book specialist are the following:

(1) patterns for organizing library materials, such as: a basic understanding of the most widely used systems of classifying

book materials, the Dewey and Library of Congress plans; the merits and shortcomings of using classified systems for organizing non-book materials, and alternate systems that are workable;

(2) selection of library materials, to include: familiarity with the standard aids for the selection of book materials and how they are used in the selection process; aspects of the book that need to be considered when making selections, and the development of criteria as a result of this knowledge and an understanding of the total school curriculum; the type of books needed to provide for all types of needs, references and enrichment;

(3) utilization of library materials, as it applies to: traditional systems of distribution; the development of specialized collections for faculty use, classroom use, central library use, in study alcoves; use of the computer as the basic element in an informational retrieval system; and

(4) operational procedures, as they relate to: relationship of professional, clerical and student assistant staff; and the staff functions of both the professional and clerical personnel.

The above elements of librarianship should give the specialist in any one of the media fields enough understanding of the school library program to enable the individual to be conversant with the library specialist in the total operation, or to assume library responsibilities in a small operation in which the specialist might need to administer the total media operation.

CONCLUSION

Complexities resulting from the technological revolution of the present century are making it necessary for American educators to develop new competencies. Every person associated with the field of education has been affected in some way by recent inventions and innovations, from the classroom teacher who has found it necessary to secure knowledge in areas that a generation ago were unknown except perhaps in the experimental laboratories, to top level administrators who now find it necessary to direct school programs by the use of highly developed computers. Within the education hierarchy, it is probably those persons responsible for providing the materials of instruction who have been most directly affected by recent scientific progress, since so many of the new developments are related to the areas of communication.

School librarians, audiovisual specialists and other personnel responsible for supplying teachers and students with resource materials are discovering that the traditional patterns previously used for providing classrooms with educational media are no longer adequate to meet the needs resulting from new curriculum organization, improved and expanded communication technology, and the increasing demand for depth knowledge in subject matter.(12)

To meet the newly created demands of the classroom teacher, it is necessary for media personnel to re-organize in a manner compatible with the need. This means finding better ways in which to provide easy access to the whole realm of instructional materials. With the school library providing only book material in a large reading room arrangement from which items are reluctantly charged to users, and with an audiovisual center oriented primarily to service of teachers in another part of the school plant, and a listening center and programed materials collection in still another location, it is evident that most schools are not doing a very adequate job in supplying teachers and students with the resources they need at arm's length in a laboratory atmosphere. It is going to be impossible to provide the proper resource services, materials, and facilities if an overlapping structure of separate book, audiovisual, television, etc. empires continue to exist in our school systems. The resolution of the problem will certainly be accelerated if personnel can be trained to understand the inter-relationship of the educational media. Therefore, the institutions responsible for training librarians, audiovisual, and other communication specialists must adopt programs that will stress the broad instructional materials approach.

It is hoped that the program of training outlined in this paper will provide the broader concepts needed by the modern school librarian in order to enable him to assume the role of leadership in the educational media program in a single school or school district. Although the fifth-year program of training has been designed for a specialist, the school librarian, it is hoped that the library concepts projected will be broadened to develop the understanding that all agencies of communication have but one purpose, the dissemination of knowledge, and that it is the responsibility of the librarian to supply and interpret all carriers of knowledge regardless of format.

Obviously, a program of the type suggested in this paper needs to have an inter-departmental approach, with the humanities and science areas playing an important role in shaping the undergraduate background of the potential educational media candidate. Professional education will also need to make a contribution in the foundation program, either during the final semesters of the undergraduate year, or on an intern basis following the completion of the baccalaureate degree. A basic understanding of the social and psychological learning characteristics of children, curriculum development, and instructional techniques are essential if the school librarian is to develop a materials program compatible with the needs of the clientele.

The inter-departmental approach will also need to continue during the fifth-, sixth- and seventh-year levels of the training program. Advanced study of such education areas as evaluation theory, supervision, personnel relationship, and finance will mean continued close relationship with the school of professional education. Problems relating to media management such as budgeting, purchasing, and distribution would certainly be areas to which the school of business could be expected to contribute. Educational technology involving systems analysis, computer-based operations, and electronic distribution systems would be areas in which the mathematics and science disciplines could be a part of the program. The art and science of educational writing, which would be a skill needed by advanced level trainees in their research, as well as a competence needed by media administrators who, as part of their responsibilities will need to prepare textbooks, manuals, pamphlets and charts, is a field in which the English and journalism areas could participate. The inter-departmental relationship could be expanded to include art, industrial technology, and engineering, as well as the obvious departments or schools related to specific fields of communication (television, drama, etc.) that would have more complete offerings than those included in the graduate school of librarianship.

Just as the training program for educational media personnel needs to depend on a wide variety of disciplines, the media specialist or generalist too must work with variety--the whole spectrum of materials. Developing the total concept, with a realization that all media needs to be evaluated and utilized as it best fits the educational need, must be the ultimate goal of any program designed for personnel in the media profession.

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EDUCATIONAL PROGRAMS FOR THE MEDIA PROFESSION

BROADCASTING

--By Dr. Armand L. Hunter, Director of Broadcasting, Michigan State University

The recent and rapid expansion of research in the communications media, the development of new communications devices and technology, and the growing application and utilization of all media in the instructional system and the teaching-learning process clearly indicate the need for a new type of professional media personnel in our schools and colleges. The same development applies to business and industry, where communication is playing an increasingly important role; and where we also find a growing need for new professional personnel.

Present media personnel have developed competencies in various individual but related fields: audiovisual, library, broadcasting, and film. The demand now and for the future would seem to be for personnel who have some competencies in all these media, plus the newest field, programed instruction. The question is: Should all media personnel, at all levels, in all positions, now have this "all media" competency, or is there still a need for individual media competencies? I am taking the position that the individual media fields--in education and in industry--will continue to require specialists and technicians, and that the new "all media" generalist will evolve by degrees out of media combinations, to emerge full scale only at the level of top administration, and a complete "educational systems" development.

Upon this premise, I assume that there are really four types of jobs, functions, or positions involved: two which apply to all of the media fields individually, one which applies to media combinations, and one which applies to the administration of a "communications system." These four functions would be:

1. A technician)	required in each media field
2. A specialist)	
3. A generalist)	required in media combinations
4. An administrator)	required in "system" operations

Each of these functions or positions require different levels and types of education and training and correspond to:

1. A four-year or undergraduate program
2. A five-year or master's program
3. A six-year or advanced graduate study program
4. A seventh-year or doctoral program

since we are discussing a "professional" type of function and position, an analogy with the medical field might be helpful. For example, in the medical profession, these four types of jobs would fall into the following pattern:

1. A medical technician
2. A specialist
3. A general practitioner
4. A chief of staff

I realize that the specialist in the medical profession might very well come at a later period than the general practitioner, so the analogy, as is usually the case, does not coincide completely. But, it does serve to indicate the kinds of functions and roles which correspond to what I am proposing as the sequence for the new media profession. Or, if it would help to describe it in terms of the types of work involved, the four functions or positions represent a progression from labor to management.

Another question, of course, is where these four functions or positions are most likely to be found, or where such jobs would exist. Looking at the media fields individually, we find one or more involved in the public school, the city school system, the county system, the state system, the college or university, the state agency or department, the local public agency or institution, and the business or commercial organization, company, or institution. This is rather a wide range of application, or opportunity for use and employment, in the media fields; but, all media are not found in use in each instance. In some cases, only one might be involved. In other cases, several might be in operation. And in a few cases, a complete "system" might be established. So, what is true in the way of professional and occupational opportunity in one of the media fields may not be true for another, and certainly would not be true for all.

My assignment then, as I see it, is to determine the nature, purpose, and requirements of a basic educational program in the broadcasting media (radio and television) which would meet the needs of the broadcasting field in itself, and at the same time incorporate the basic principles and requirements of the other media fields, which would, in such combination, meet the needs of a new media profession. In short, my job is to make the "silk purse" of the new professional "Media Generalissimo" out of the "sow's ear" of the radio and television specialist. I propose to attempt this transmutation through an educational training progression, based upon the nature of the competencies required at the different levels of application or function. And, in the case of the broadcasting media, I propose to start at the undergraduate level.

I. THE UNDERGRADUATE PROGRAM: EDUCATION FOR A "TECHNICIAN"

I am using the term "technician" in the dictionary sense of "one skilled in a technique." In this case it is the technique of radio and television broadcasting; but while it applies to the individual's professional specialty, it is not meant to delimit the individual's personal or educational level of competency or achievement. A four-year undergraduate program leading to a bachelor of arts degree is supposed to produce a reasonably well-educated man, along with a basic mastery of some major field of study. I hope it is clear that the reason I start with the undergraduate program in broadcasting is that it provides the foundation for the first level of performance: that of the technician, or one skilled in the technique of broadcasting. It is only upon this basis that I can build a level of entrance to the graduate and higher position programs. Some of the media fields perhaps start specialization only at the graduate level, but broadcasting in most instances starts at the undergraduate level.

To begin then, the undergraduate program for the broadcasting major should include five general areas of study: (1) the arts and humanities, (2) the social sciences, (3) the natural sciences, (4) the communications media other than broadcasting, and (5) the broadcasting media. The major field of study should develop within the student: (1) professional skills and abilities in the techniques and practices of broadcasting, (2) standards of taste and evaluation in terms of content and form, and (3) a basic understanding of the sociological, political, economic, cultural, and educational impact and influence of the media.

The specific design of such a program would vary with different schools and departments, but the general objectives and purposes would remain the same. An example of a curriculum, or listing of courses, from which an undergraduate program of this nature could be developed would be as follows:

A. Arts and humanities

1. Introduction to art or the history of art
2. Introduction to music or the history of music
3. Introduction to philosophy or the history of philosophy
4. Esthetics or the philosophy of art
5. Logic
6. Ethics
7. European history
8. American history
9. Contemporary history: Latin America, Africa, Asia
10. Nature of language--grammar
11. Forms of literature
12. English composition--expository writing
13. European or American literature
14. Foreign language: French, Spanish, or German

B. Social sciences

1. Introduction to psychology or general psychology
2. Psychology of communication
3. Psychology of behavior
4. Introduction to sociology

5. Introduction to anthropology
6. Sociology of mass communication
7. Introduction to political science
8. Introduction to economics

C. Natural sciences

1. Survey of, or introduction to, the natural sciences
2. Acoustics
3. General astronomy
4. Foundations of, or introduction to, geology

D. Communications media other than broadcasting

1. The communication process
2. Public speaking and group discussion
3. Introduction to the theatre
4. Fundamentals of play production
5. History of the theatre
6. Comparative drama
7. Introduction to journalism
8. History of journalism
9. Introduction to advertising
10. Audiovisual instruction
11. Fundamentals of film production
12. History of the motion picture

E. Broadcasting Media

1. Foundations of broadcasting
2. Fundamentals of radio broadcasting
3. Fundamentals of television broadcasting
4. Radio and television writing
5. Radio and television announcing
6. Radio directing and production
7. Television directing and production
8. Radio and television programing
9. The use of film in television
10. The responsibility of broadcasting

The student could not and would not take all of these courses, but they represent a type and range from which an organized sequence of studies could be designed to provide the student over the four-year period with the information, understanding, knowledge, and skills required for a liberal arts degree with a major in broadcasting and which would prepare him as a "technician" in his professional field. Described in behavioral terms, or in terms of desirable competencies, the graduate of this program ideally should possess the following:

A. Knowledge and understanding

He should know something about the basic principles of art, composition, and design. He should know the history of art--the periods, the schools, the forms, the methods. He should know art as a medium of expression and communication, and the standards or criteria by which he could make judgments of taste and comparative evaluations. He should have the same fundamental knowledge and understanding of the elements and history of music, of the types and forms of music, of music as a medium of expression and communication, and of the standards and criteria for evaluation. He should know the history and the story of man's effort to know himself, his fellow men, and the world in which he lives. He should know of man's enduring quest for truth, for beauty, and for justice as expressed in his philosophies, his religions, and his cultures, through his logic, his ethics, his esthetics, and his metaphysics. He should know the origins, the struggles, the conflicts, the achievements, the aspirations, and the defeats of men and nations throughout the history of civilization. He should know his songs, his poems, his plays, his stories. He should know the nature of man and his behavior, the structure of society, his political, economic, and social relationships. He should know the nature of the land and sea beneath his feet, and of the stars and universe above his head. In short, he should have a basic knowledge and understanding of himself as man--of his inner world and outer world--of life, of death--of meaning and of purpose.

He should know the basic principles of communication theory and the communication process. He should know the basic principles of speech as a medium of communication and of expression. He should have a knowledge and understanding of the theatre and its dramatic art form as a medium of expression and communication. He should know the history and nature of film, and the use of the motion picture as a medium of art, education, and communication. He should know the role and function of the press in society, and as a mass medium of communication. He should know the basic principles of visual composition and graphic design in the production of instructional materials. In short, he should have a basic knowledge and understanding of the communication process and of all the communications media.

He should know the role and function of radio and television in society, as mass media of communication. He should know the basic principles and techniques of radio announcing, writing (continuity), and production, and of television announcing, writing (continuity), and production. He should know the methods and procedures of program planning and development for both media, and of station programing for both media. And, he should know the responsibilities and obligations of the broadcaster as the grantee of a public trust.

B. Skills and abilities

1. Utilization

He should be able to select from the graphic, plastic, and pictorial arts those items or materials most proper and effective for the visual communication needs of television. He should be able to select from among the types and forms of music those compositions or arrangements most suitable and effective for aural communications and programing needs of radio and television. He should be able to judge as to the good taste, suitability, and acceptability of both the content and form of radio and television programs. He should be able to think clearly, to speak and write effectively, to make decisions, and to act intelligently. And, he should be able to use broadcasting programs and materials, in all forms, for communication purposes, and to achieve communication objectives.

2. Production

He should be able to design and prepare simple graphic materials for television use. He should be able to write effective copy for radio and television, and to read it for broadcast. He should be able to plan and design programs of all types for both media, and to direct and produce them. And, he should be able to operate and use the tools of the broadcasting media--microphones, cameras, control panels, switching systems, lighting instruments, etc.--for the purpose of creating effective communication through the elements of light and sound. Within the framework of a closed-circuit or broadcasting system or station, he should be able to serve as a cameraman, floor director, staging supervisor, lighting supervisor, assistant director, director, assistant producer, producer, continuity writer, continuity supervisor, music supervisor, announcer, program assistant, technical director, production supervisor, studio operations supervisor, assistant program director, or assistant manager. All would apply to television, but only "assistant director" through "assistant manager" would apply to radio. He should be able to train others in these various functions and positions. And, he should be able to work with teachers and talent in the development of performance skills required for effective use of the broadcasting media.

3. Administration

His capacities for supervision and administration would be limited to the relatively lower and middle management levels. He should be able to perform as a production supervisor, studio operations manager, continuity supervisor, assistant program director, or assistant station manager. He should be able also to supervise and administer a small closed-circuit communications or television system within a single school or in a limited installation. In addition, he could do some of the things required of an audiovisual "building supervisor"; but he could not do the entire audiovisual job, or serve as the school librarian. In short, he would not be qualified or ready to serve in top administrative positions. He would be primarily a craftsman or technician in the broadcasting media.

4. Research

He would not have the training or experience to conduct or supervise media research.

C. Employment opportunities

Employment opportunities for the graduate of this four-year program would exist for the most part in commercial and educational broadcasting stations, closed-circuit systems, and production agencies or centers. The possibilities within the media "market" would be as follows:

1. The public school

Supervisor--radio and/or television service

2. The city school system

(Same as for the public school)

3. The county system

(Same as for the public school)

4. The state system (state office of public instruction)

(No position exists)

5. The college or university (closed-circuit system or broadcasting station)

- a. Cameraman
- b. Floor director
- c. Staging supervisor
- d. Lighting supervisor
- e. Assistant director
- f. Director
- g. Assistant producer
- h. Producer
- i. Continuity writer
- j. Continuity supervisor
- k. Music supervisor
- l. Announcer
- m. Program assistant
- n. Technical director

   - o. Production supervisor
   - p. Studio operations supervisor
   - q. Assistant program director
   - r. Assistant station manager

6. The school broadcasting station

   (Same as for the college or university station)

7. The state broadcasting network or system

   (Same as for the college or university station)

8. State agencies or departments

   (Radio and/or television director or producer)

9. Local public agencies or institutions

   - a. Radio and/or television director or producer
   - b. Community ETV and/or radio station

   (Same as for the college or university station)

10. Business or industry

   - a. Commercial stations, networks, production agencies

     (Same as for the college or university station; but more limited at the start and conditional by the unions in technical areas.)

   - b. Advertising agencies
     - (1) Writer
     - (2) Assistant director
     - (3) Assistant producer
     - (4) Program assistant
   - c. Industrial communications system
     - (1) Supervisor
     - (2) Operations manager

Summary

The educational program in the broadcasting media starts with a four-year undergraduate program leading to a liberal arts degree with a major concentration in radio and television. The graduate of the program described above would be a paragon, perhaps more ideal than real, but he would be qualified to serve as a "technician" in the field of his specialization.

He would have a basic knowledge and understanding of the other media fields, and some competency in their areas as related to, or utilized in, radio and/or television; but he would not be a "media" man; he would be strictly a "broadcasting" man. He would stand at the first level of the "all media" ladder, but at the middle level of the "broadcasting media" ladder. He would be a liberally educated man in the full sense of the term who meets the needs and requirements of his professional field. He can remain within it, as a part of a larger media complex, or, he can go from this point to the next stage and thus begin the ascent toward a multi-media program.

II. THE FIFTH YEAR: EDUCATION FOR A "SPECIALIST"

Since this particular program development stays within the broadcasting continuum, the fifth year of study, or the first year of graduate study would start upon the foundation established in the undergraduate four-year program. In short, we would move from the level of "technician" to that of "specialist." Upon this basis, the purpose of the master's degree in "broadcasting" should be to develop within the student: (1) a greater knowledge and understanding of communication theory, and some competency in the analysis, design, and interpretation of communication research; (2) a knowledge and understanding of the history, philosophy, and purpose of education; (3) a basic knowledge of the psychology of learning; (4) a broader technical knowledge and more skill in the production and utilization of other media in relation to broadcasting; and (5) an intensive and special knowledge and mastery of a particular aspect of broadcasting.

The areas of study which should be included in this fifth-year program would be: (1) communication theory and research; (2) education; (3) psychology; (4) other media fields; and (5) the broadcasting media. Again, the specific design of the program would vary with different schools and departments, but, in general, the following types and sequences of courses would be examples of studies from which a curriculum could be developed:

A. Communications

1. Communication theory
2. Communication research
3. Mass communication theory

B. Education

1. History of American education
2. Philosophy of education

C. Psychology

1. Learning and motivation
2. Communication and persuasion
3. Human learning

D. Other media fields

  1. Printing and graphics
  2. Photography and film production
  3. Utilization of audiovisual materials

E. Broadcasting media

  1. Research, special problems, and seminars

    a. Production

    b. Administration

      (1) Station management
      (2) Broadcasting and government
      (3) International broadcasting

    c. Evaluation

    d. Utilization

    Radio and television in education

These courses represent a range of study which should provide the student with the information, knowledge, and skills required for a master's degree in broadcasting, and which would qualify him as a "specialist" in his professional field, while at the same time move him to the second level of the "all-media" program. In behavioral terms, or in terms of desirable competencies, the graduate of this program should possess the following:

A. Knowledge and understanding

He should have an understanding of the various theoretic models of communication and the application of communication theory to various communication areas. He should know the basic elements of communication research design and methodology. And, he should know the techniques of applying basic behavioral theories to institutional and other aspects of the mass communication process.

He should know something about the development of educational institutions, thought, and practices in the U. S., and their impact upon our society and culture. He should be familiar with the basic and persistent philosophical problems in education, and the methodologies required for their analysis and evaluation.

He should know something about the concepts and principles involved in perception, human learning, motivation, personality, and development. He should know the psychological processes underlying communication and persuasion, and the effects of communication forms, symbols, and techniques upon audience attitudes, opinions, and ideas. And, he should know something about motivation, cognition, and learning in social interaction, and the process of social influence and persuasion.

He should have a more intensive knowledge of the principles and techniques involved in the preparation and production of all forms of printed and graphic materials. He should know the basic principles, techniques, and procedures of photography and film production, and of the preparation of photographic and film materials. And, he should know the principles, methods, and procedures for the effective utilization of all media in the process of communication and education.

He should know the producer's functions and responsibilities in the planning and supervision of program production, and the principles of composition and design of program elements and production techniques for the purpose of securing effective communication and the desired audience response. He should know the principles and problems of staff and station administration and management, and the responsibility of management in the determination of the place and function of the broadcasting station in the community and society it serves. He should know the legal and governmental regulations which apply to broadcasting and station operation. He should know the role and function of the broadcasting media in education and in international communications. He should know the standards, values, and criteria by which programs and the station can be judged as to the fulfillment of their purpose. And, he should know the nature of the broadcasting audience, its needs, and its requirements.

B. Skills and abilities

1. Utilization

He should have the ability to understand and utilize the results and findings of communication research, and to apply them in the development and design of programs, and the operation of the station. He should be able to apply his knowledge of the principles of learning to the production of educational programs and instructional materials. He should be able to incorporate the forms of other media into the forms of broadcasting, where such combinations can be designed to achieve more effective communication. And, he should be able to relate and fit the broadcasting media into the structure of the educational and cultural process and environment of society.

2. Production

He should be able to design and produce printed and graphic materials for any communication or educational purpose, including their use in broadcasting. He should be able to produce films and film materials of educational value for any communication purpose. He should be able to plan and produce broadcasting programs at a high level of excellence and effectiveness. And, he should be able to design and develop multi-media programs or projects for the purpose of achieving broader and more comprehensive educational communication objectives.

3. Administration

He should be able to handle the responsibilities of middle and upper level station administration and management, educational or commercial. He should be able to serve as a production manager, an operations manager, a program director, or a station manager. In an educational station network situation, he should be able to handle any of the administrative staff positions, including that of the network director.

In a commercial network situation, he should be able to handle most of the middle and upper level administrative positions. In the school systems, he should be able to serve as the director of any closed-circuit communications system and/or educational station. Also, he should be able to incorporate the audiovisual services within his supervision. However, he still would not be qualified to administer the library services, or manage an all media "systems" program.

4. Research

He should be able to design and conduct basic research in communications, especially in the broadcasting media, but he would not be a specialist in research. He would be more effective in the application and relation of research to the media fields, than in the conducting of research.

C. Employment opportunities

The opportunities for employment of this fifth-year and graduate student would be greater in the field of education than for the four-year student, and also greater in both educational and commercial broadcasting. The possibilities within the "media market" would be as follows:

1. The public school
   a. Director of broadcasting and/or communication services
   b. Director of audiovisual media services

2. The city school system

   (Same as for the public school)

3. The county system

   (Same as for the public school)

4. The state system (state office of public instruction)
   a. Broadcasting and/or audiovisual media specialist
   b. Director of the broadcasting and/or audiovisual media department or services

5. The college or university (Closed-circuit system, broadcasting station, and/or audiovisual center)

   a. Closed-circuit system

      (1) Production manager
      (2) Operations manager
      (3) Program manager
      (4) Director or manager of total system

   b. Broadcasting station

      (1) Production manager
      (2) Operations manager
      (3) Program director or manager
      (4) Director or manager of the station

   c. Audiovisual media services

      (1) Assistant director

6. The school broadcasting station

   (Same as for the college or university station)

7. The state broadcasting network or system

   (Same as for the college or university station, except that the titles and functions would apply to the network rather than a station.)

8. State agencies or departments

   a. Director of the broadcasting and/or audiovisual media section or services

9. Local public agencies or institutions

   a. Director of the broadcasting and/or audiovisual media department, division, or services

   b. Community ETV and/or Radio Station (Same as for the college or university station.)

10. Business or industry

    a. Commercial stations

       (1) Production manager
       (2) Operations manager
       (3) Program director) would have to work into these through
       (4) Station manager) commercial experience.

b. Networks

(1) Producer
(2) Production manager
(3) Operations manager
(4) Director of public affairs
(5) Other middle and high level management positions.

(Would have to work into all of these through commercial experience.)

c. Advertising agencies

(1) Writing director
(2) Producer
(3) Production director

(Would have to work into these through agency experience.)

d. Industrial communications systems

(1) Manager

Summary

The second step of the educational program in the broadcasting media is the first year of graduate study leading to a master's degree with a major concentration in radio and television. Cognate areas would be communications, psychology, and education. The graduate of this program would now be a "specialist" in the broadcasting media, with a sound and substantial background and competency in all of the audiovisual media and methods. He is still not qualified in library services, and is not too knowledgeable about programed instruction. So, he is still primarily a "broadcasting" man, secondarily an "audiovisual" man, but not yet an "all-media" man. He stands at the middle level of the "all-media" ladder, but at the highest level of the "broadcasting media" ladder. However, he has moved into the media channel, although his professional specialization still is broadcasting. The cognate studies in education, psychology, and communications have moved him there. Other cognate areas, of course, would move him more intensively into broadcasting, or into some other related field, but with this program he is on the way to an "all-media" complex. He can stop at this point if he wishes and remain a broadcasting "specialist" with multi-media competencies, or, he can go on to a sixth-year of study and move directly into an "all-media" program.

III. THE SIXTH YEAR - EDUCATION FOR A "GENERALIST"

Since the program is being developed through the broadcasting "channel," the sixth year of study, or the second year of graduate study, starts upon the foundation established in the B.A. and M.A. programs. The student was first a "technician" and then a "specialist" in the broadcasting media, with a strong liberal arts background and substantial competencies in education, communications, and related audiovisual media fields. He is now entering into a program of "advanced graduate study" in the effort to become a "generalist," with substantial competencies in all media. The purpose of this advanced graduate study should be to develop within the student: (1) a basic understanding of the principles of programing for learning: analysis, design, and development of instructional systems, (2) a basic understanding of information theory and computer languages and operations, (3) a greater knowledge of educational methods and educational research, (4) a basic knowledge of library science and operations, and (5) a knowledge of the new research and developments in instructional technology.

The areas of study which should be included in this sixth-year program are: (1) psychology, (2) mathematics and engineering (if possible), (3) education, (4) library science, and (5) special problems. While the specific design of the program again would vary with different schools and colleges, the following types and sequences of courses would be examples of areas of study from which a curriculum could be developed:

A. Psychology

1. An independent study course or seminar in the theory methodology and techniques of programed instruction.
2. An independent study course or seminar in the analysis, design, and development of instructional systems and processes involving multimedia.

B. Engineering and/or mathematics

1. Information theory
2. Special seminar or workshop on systems theory
3. Special seminar or workshop on computer languages and coding

C. Education

1. Curriculum, methods, and materials
2. Educational research

D. Library science

1. Selection of library or instructional materials
2. Organization of library or instructional materials
3. Utilization of library or instructional materials
4. Administrative and operational procedures

E. Special problems and projects

Individual study projects on the research, growth, and development in instructional technology.

These courses and special studies represent the content and subject areas which should provide the advanced graduate student with the information, knowledge, and understanding required at this third level, and which would qualify him as a "generalist" in the "all-media" field. In behavioral terms, or in terms of desirable competencies, the graduate of this program should possess the following:

A. Knowledge and understanding

He should have a knowledge of the new developments in programed instruction, including the different theories, methods, techniques, forms, and devices. He should know something about media combinations, "system" theory and analysis, and the design and development of instructional systems. He should know something about "information theory" and the application of its principles to the communication process. And, he should know something about computer languages, problem-coding for high-speed automatic computers, and information storage and retrieval systems.

He should know something about the basic principles of curriculum design, and the adaptation of methods and materials for improvement of instruction and for special learning problems. And, he should know something about educational research problems, studies, and literature.

He should have a basic knowledge of the function, purpose, and operation of a library. He should know something about the different systems of classifying book materials and alternate systems for organizing non-book materials. He should be familiar with the criteria and aids for the selection and evaluation of book materials. He should know the traditional systems for the distribution and utilization of library materials, and also know of the use of the computer as the basic element in an informational retrieval system. And, he should know something about administrative and operational practices and procedures.

He should know about the history, growth, and development of instructional technology in the media. And, he should be familiar with the research, the findings, and the growing literature of this field.

B. Skills and abilities

1. Utilization

He should be able to apply the principles of learning and the methods of programing to the broadcasting media and film in the design of new types of instructional programs. He should be able to utilize combinations of media in the design and development of instructional systems. He should be able to apply the use of computers and information storage and retrieval systems to the problems of communication and the use of media in the educational process. He should be able to utilize the findings of research and the new developments in instructional technology in curriculum design and planning. He should be able to apply the principles of classifying book materials and non-book materials to the organization of other media materials. And, he should be able to utilize his knowledge of research in communications, education, and the media fields in working with teaching faculty and staff on instructional problems.

2. Production

He should be able to design and produce a radio, television, or film program or series for instructional use which would incorporate the principles of effective learning and utilize the methods of programing. He should be able to design and produce the instructional materials to be used in such a program or series. He should be able to design and develop an instructional "system" to achieve a particular learning objective, by the creative combination of the various media according to their relative nature, function, and effectiveness. He should be able to translate media information into computer languages for storage and retrieval. He should be able to use, and teach the use of, the "hardware" or the equipment and devices of instructional technology. He should be able to set up a classification or organization system for all types of media materials. And, he should be able to translate the findings of media research into the production of instructional materials and programs.

3. Administration

He should be able to serve as the director or head of the educational media program or services in the public schools, and at the upper level of school administration. He should be able to serve as the director or head of any of the audiovisual media fields or services at the college or university level with the exception of the library, where he should be able to serve as the assistant director. And, he should be able to serve as the assistant director of an "instructional system" service, or learning resources complex or center.

4. Research

He should be able to determine and define research problems in the media, and to design and supervise research on them. He should be able to design and supervise research in instructional systems utilizing computer resources and facilities. And, he should be able to conduct and supervise historical, evaluative, descriptive, and comparative effectiveness studies in any of the media fields.

C. Employment opportunities

The opportunities for employment of the advanced graduate student would be almost exclusively within the schools, colleges, and universities. As an all-media generalist, he has moved beyond any function or position that is apt to be found in business or industry. The "media market" possibilities now would be as follows:

1. The public school

   Assistant superintendent and director of the educational media department program, or services

2. The city school system

   (Same as for the public school)

3. The county system

   (Same as for the public school)

4. The state system (state office of public instruction)

   (Same as for the public school)

5. The college or university

   a. Director of broadcasting and/or closed-circuit instructional services
   b. Director of audiovisual services
   c. Director of audiovisual media services
   d. Assistant director of library services
   e. Assistant director or dean of learning resources or instructional services

6. The school broadcasting station

   (No position of this nature)

7. The state broadcasting network or system

   (No position of this nature)

8. State agencies or departments

   (No position of this nature)

9. Local public agencies or institutions

   (No position of this nature)

10. Business or industry

    (No position of this nature)

Summary

The third step in the educational media program is a second year of advanced graduate study. No degree is earned; but a special certificate often is given. The areas of special study during this year would be in psychology, engineering and/or mathematics, education, and library science, with much of the work being done in special seminars, workshops, independent study, individual projects, and tutorial sessions. The graduate of this program now would be a "generalist" with background, experience, and competencies in all of the media fields, having reached this stage by progression through broadcasting, audiovisual, and library science. He has moved from educational and instructional programs to educational and instructional "systems" and is now committed almost exclusively to education and the educational process.

IV. THE SEVENTH YEAR - EDUCATION FOR AN ADMINISTRATOR

The seventh year of study, or the third year of graduate study, continues on from where the sixth year left off, and leads to the Ph.D. The student would now complete the educational program for the new media profession, and would be aiming at the highest level of media administration and management. The purpose of this final year of study should be to develop within the student: (1) a knowledge of the problems and principles of administration and good management practices, (2) a greater knowledge and understanding of man and the world in which he lives, (3) a speaking competency in at least one foreign language, and a reading knowledge in at least two, and (4) a special competency in research through a dissertation in a selected problem in the educational media field, or a creative project possibly involving the design of an "instructional system."

The areas of study which should be included in the seventh-year program are: (1) administration and management, (2) philosophy, (3) foreign languages, and (4) research. Again, the specific design would vary with different schools and colleges, but the following types and sequences of studies would be examples from which a curriculum could be developed:

A. Administration and management

1. Organization and administration
2. Office management
3. Human relations problems in administration

B. Philosophy

1. Philosophy of science
2. Philosophy of the social sciences
3. Philosophy in literature

C. Languages

1. French
2. Spanish
   or
3. German

D. Research

(Special problem or project in the media field)

These courses represent the study areas which should provide the student with a program for the completion of a doctorate, and which would qualify him for the highest professional level of media administration and management. In behavioral terms, or in terms of desirable competencies, the graduate Ph.D. should possess the following:

A. Knowledge and understanding

He should have a knowledge of the internal organization and administration problems and principles of an office and institution, and the behavioral aspects of the executive position. He should know about office procedures, personnel, standards, and supervision. He should know about relationships among people in administrative organizations. And he should know something about budgeting, purchasing, cost-accounting, building and space requirements, and equipment needs.

He should know something about the methodology of the behavioral sciences: concept formation, theory construction, subjectivity, and value judgments. He should know about the purpose and meaning of science, the interests and problems of science, and the ethical issues and values of science. And, he should be familiar with the philosophical issues and problems found in the best of our poetry, prose, and drama.

He should be able to read at least two foreign languages and speak at least one fluently. And, he should be able to write a dissertation based upon the intensive research of a media problem, or design and develop a creative type of project in the formulation of an "instructional system" that would be acceptable as a dissertation.

B. Skills and abilities

1. Utilization

He should be able to utilize the principles of effective administration and management to operate a complete media system or service. He should be able to apply his knowledge and understanding to the value judgments and decisions required of top administration. He should be able to bring his experience and "know how" to bear on the problems of education in which instructional systems offer solutions to better teaching and learning, and he should be able to perform this service at all levels and in all situations, foreign or domestic.

2. Production

His function now would be almost exclusively administrative. He would no longer be involved in the actual production of programs, materials, or services.

3. Administration

He should be able to serve as the top administrator or "chief-of-staff" of a complete "educational systems" service or learning resources center. This would include working with other top administrative officers and offices; hiring, organizing and supervising a faculty and staff; developing and administering a budget; developing and administering policies and departmental procedures; coordinating the various media branches and services; and making an "instructional systems" whole that is greater than the sum of the individual media parts.

4. Research

He is qualified to design, supervise, and conduct media research as has been noted. This skill would be enhanced by the research required for a dissertation, but his administrative function and duties would make it difficult for him to continue to be active in research himself. Keeping up with research and supervising special projects would be about the limit of his involvement.

C. Employment opportunities

The opportunities for employment of the media Ph.D. would be restricted almost exclusively to the field of education, although some opportunities might develop in government and in business and industry sometime in the future. The market possibilities would probably be as follows:

1. The public school

Assistant superintendent and director of educational services

2. The city school system

(Same as for the public school)

3. The county system

(Same as for the public school)

4. The state system (state office of public instruction)

(Same as for the public school)

5. **The college or university**

   Director or dean of educational services or of a learning resources center

6. **The school broadcasting station**

   (No position of this nature would exist)

7. **The state broadcasting network or system**

   (No position of this nature would exist)

8. **State agencies or departments**

   (No position of this nature would exist)

9. **Local public agencies**

   (No position of this nature would exist)

10. **Business or industry**

    (No positions of this nature now exist. Some possibilities might develop in the future in larger corporations with extensive staff and personnel educational and training programs.)

11. **Federal agencies or departments**

    (No positions of this nature now exist. Some possibilities might develop in the future in the armed services' educational and training programs and in a number of the cabinet departments which administer extensive educational programs and projects.)

Summary

The final step in the educational media program would lead to the Ph.D. and result in the development of a top professional media administrator. He would be capable of conceiving, designing, developing, supervising, and operating a complete "instructional system" representing the coordination and combination of all of the communications media. He could serve in this capacity at all levels of the educational process, at home or abroad. And, he would hold a new and unique position within the structure of the educational institution and system.

V. MINIMUM COMPETENCIES IN BROADCASTING REQUIRED FOR PROFESSIONAL PERSONNEL IN OTHER MEDIA FIELDS FOLLOWING SIMILAR PROFESSIONAL DEVELOPMENT PROGRAMS

Assuming that a similar progressive program toward the professional media administrator is being developed in the other media fields, the areas of broadcasting that would be most necessary and valuable for the non-broadcasting specialist would be as follows:

A. Production

A knowledge of the nature, function, capacities, and uses of the technical "tools" of the broadcasting media--microphones, cameras, lighting instruments, switching panels, consoles, recording and play-back units, film and slide chains, etc.--as the "paint, palette, brushes, and canvas" of creative communication through the elements of light and sound in the process of production. This should include the "language" or "grammar" of the microphone and camera: sound balances, perspectives, and relationships; camera and performer movements, balances, and relationships; shot sequences and picture composition; styles of staging; and the internal and external rhythms of performance, which constitute the form of radio and television communication.

B. Utilization

A knowledge of the various uses of the broadcasting media for informational, educational, and instructional purposes, both on-the-air and in the classroom. This should include a knowledge of the current educational uses of the media, a knowledge of the results of studies and research in the educational effectiveness of the media, and a knowledge of the various types and forms of educational and instructional programs.

C. Management

A knowledge of station and staff organization and operation. This should include space, studio, and equipment design and needs, capital and operating costs, budget control and supervision, personnel and staff requirements, and the development of programing and operating policies and procedures.

This content might be found and these competencies might be developed in existing courses in some departments. But in most cases, it would be necessary to develop these as special courses for the non-broadcasting major. Much of the work in utilization and management could be done in individual study projects, special problems courses, or seminars. The production work would require studios, equipment, and a full production "crew." This could be found only in a "class-laboratory" situation or possibly in a special "internship" in an active station or closed-circuit system.

CONCLUSION

We started with the assumption that there is a need for a new type of professional media personnel in education today, representing a range of experience and competencies in all of the media fields and with the ability to serve as a top administrator qualified to manage a complete "instructional system." We have attempted to design a program for the broadcasting major which would achieve such a purpose. But there are a number of questions perhaps which need to be asked.

Is a new program necessary? I believe it is. Present programs concentrate and specialize in one of the media or in limited media combinations. The "all-media" combination requires the careful selection of disciplines and elements designed to achieve an educational objective that is not now being realized and can only be realized through new patterns and relationships.

Do the need and a market really exist? I believe they do. The evidence is piling up in the form of requests for such personnel and in the growing development of instructional systems and services. The demand for qualified and experienced personnel far exceeds the supply.

Will such a program have academic acceptance? It can have if the base and the structure are built firmly on the academic rocks of the arts, humanities, social sciences, and education. Every effort should be made to keep it from an identification with technology as such or with means rather than ends.

Where does it fit into the academic structure? I believe it can be developed best as a joint program between several departments and colleges of the university. Some "schools" or "colleges" might be able to handle it individually, but the range of content and disciplines required would make it difficult. It would work only in special situations.

What are the requirements for faculty and staff? New courses, new programs, new organizations of information require special teaching competencies and abilities. The faculty will need to learn the nature and dimensions of the new relationships. The student cannot do it all himself. He will need superior teaching and expert guidance.

What are the requirements for physical facilities? Audiovisual, broadcasting, library science, and computer systems all require high cost technical equipment and physical facilities. This would be an expensive program in terms of the "laboratory" resources that would be needed. In fact, the cost would be so great that only a university fully committed to the concept and value of an instructional system service would be likely to make the investment. Under these conditions, a new program, such as has been proposed, probably could only be developed in a select few of the larger and more progressive institutions.

These are not all of the questions, nor are the answers complete, but for the most part I believe we have made at least a beginning case for a new professional media program. As it stands, it may be unrealistic, too ideal, assume too much, but I believe that the idea and the core are there and that it stands a good chance of effective realization. Only time and some effort to actually develop such a program will really provide the answers.

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EDUCATIONAL PROGRAMS FOR THE MEDIA PROFESSION

INSTRUCTIONAL TECHNOLOGY: PROGRAMED INSTRUCTION AND COMPUTER GUIDED LEARNING

--By Dr. Wendell I. Smith, Chairman, Department of Psychology,
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I. ASSUMPTIONS

A.

Within a decade, many audiovisual specialists actually will be instructional technologists; i.e., they will be specialists in manipulating several of the variables of which learning is a function. The variables with which these specialists will be centrally concerned seem likely to be those related to instructional materials and techniques rather than those related to the person, such as motivational, personality and cognitive variables, since these are the central concern of psychology.

B.

Instructional technology will be an interdisciplinary field of work, drawing its substantive content and its techniques from a variety of areas, e.g. sociology, psychology, anthropology, education, communications, computer sciences, library science; however, the core will be drawn largely from behavioral science.

C.

The learning process will come to be examined, analyzed, designed and researched primarily within a "systems" frame of reference. The "systems approach" will make it necessary for instructional technologists to work with other specialists who will have some concern with instructional materials and techniques with which he is a specialist and a major concern with subject matter and individual difference variables.

D.

Programed instruction will be one, but not the only one, of the several central concerns of an instructional technologist; therefore, it is unlikely that a graduate program in programed instruction is desirable, let alone necessary.

II. PREFERRED ENTRANCE LEVEL

A. Majors and Minors

On practical grounds, it is expected that "...a degree from an accredited college or university; a record indicating a sound academic background; any one of a variety of specializations"[1] will be the general requirements for admission; however, to reduce to a minimum the amount of non-credit and essentially beginning-level undergraduate work in the program, it seems desirable to recommend some majors and minors which would tend to provide a reasonable foundation upon which to build a graduate program. A major and a minor (15 credit hours) drawn from the following should insure such a foundation: sociology, statistics, educational psychology, experimental psychology, elementary education, secondary education, library science, communications, audiovisual education, engineering (electrical, computer, mechanical), anthropology, and television and radio production.

B. Information Desired

Since the pool of students in graduate programs of the media professions will consist of persons from several possible combinations of majors and minors, it is improbable that applicants to the program will have had, or can be expected to have had, an opportunity to acquire a common core of information; however, it seems desirable, in fact necessary, that they meet minimum level of competence in several of the following to avoid excessive duplication of undergraduate introductory courses:

1. Define and use appropriately the elementary vocabulary and core concepts of

    a. the psychology of learning: the models for operant and respondent conditioning

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[1] "Suggestions, Recommendations, and Proposals," Journal of Education for Librarianship. Vol. 3, No. 1 (Summer 1962) p. 55.

   b. the psychology of perception: elements of sensation and perception

   c. the psychology of motivation: reinforcement, drive, motive, incentive

   d. individual differences: rationale for measurement, general nature of intelligence, aptitude, achievement, and personality tests

   e. rationale for the application of scientific methods to the study of behavior.

   Note: 1a through 1e would be acquired in any sound course in general or educational psychology.

2. Define and use appropriately the elementary vocabulary and core concepts of

   a. sociology or anthropology

   b. principles of education

   c. modern algebra or statistics

   d. acquisition and organization of instructional materials.

   Note: 2a through 2e can be acquired in introductory courses in the respective subjects which typically are given as freshman or sophomore courses.

3. It is considered desirable that the applicant have a deeper knowledge of one of the topics listed in 1 and 2 above. Typically, but not always, this knowledge can be acquired during the course of undertaking a major in a subject of substance. For those who desire to become programed learning specialists, in particular, it seems necessary, in fact, that they have sufficient knowledge of one subject to enable them to write programed material on that subject.

C. Skills Desired

None, other than the appropriate use of vocabulary and concepts of several of the subjects listed under B1 and B2 above.

III. FIRST YEAR

Because of the diverse training and experiences of those who will matriculate in a graduate program in instructional technology, a major segment of the first year will have to be devoted to acquiring the elementary vocabulary and the core concepts of several areas of knowledge directly supportive of instructional technology. The first year level needs some focus, some specific terminal objective, particularly for those who choose to remain in graduate training for only one year. It is argued that the focus be general rather than specific; that the common core for the media professions be offered early in the student's career to provide (a) for efficient use of instructional resources and (b) an opportunity for exploration of several options of careers. It is recommended that a set of diagnostic examinations covering the content listed in II B1 and B2 be prepared and administered to all students at the time of matriculation. This procedure will help in establishing the "entry behavior" of each student. Desired levels of entry behavior for each category of information can be set and those students who fail to achieve that level for a category can be assigned a learning program designed to bring him to the minimum level of mastery.

A. Information to be Acquired

The vocabulary, concepts and principles to be acquired are those central to

1. psychology of human learning, human motivation and personality, human development, perception
2. design and analysis of simple, single-variable and multi-variable experiments in instruction
3. assessment of human performance, particularly of achievement
4. philosophy and history of education
5. instructional methods including programed instructional and audiovisual education
6. theories of communication
7. selection and evaluation of instructional materials
8. organization of instructional materials.

Unquestionably, the most efficient way for the student to acquire the information listed is through a combination of reading lists, learning programs, and seven or eight 2 credit-hour seminars. Given an enrollment of 10 or more students, this combination probably is the most economical in utilization of faculty.

Some self-instructional material on topics 1, 2, 3, and 5 has been written and tested (and, in a few instances, published). Additional material will have to be prepared if self-instruction is to be a major mode of instruction at this stage of the program.

B. Application Skills

1. Select, evaluate, and organize instructional materials, including books and programs

2. Operate, and demonstrate to others the operation of audiovisual equipment used routinely in instruction, e.g., still, slide, and motion picture projectors and tape recorders

Both 1 and 2 can be acquired "on the job" through a practicum or tutorial rather than in a formal course. Again, self-instructional material, some of which now is available, must play a strong supportive role.

C. Production Skills

Through a "practicum" or tutorial, each student must be able to produce and teach others how to produce "simple" and routine material for use in instruction, e.g., transparencies, tape recordings, slides, and displays. The rudiments of the production of materials with Verifax, Thermofax, Xerox, Multilith, Mimeograph, and microfilm ought to be included since these techniques can be learned quickly.

D. Research Skills

1. Each student will design at least two studies in each of the following domains:

    a. Comparative effectiveness studies of instructional procedures

    b. Evaluation studies

    c. Descriptive studies.

    This skill is to be developed in conjuction with a seminar on topic A2, above, as extra-class projects and some of the projects can be used in the seminar for discussion and training.

2. Each student will analyze with appropriate statistical tests data from "live" studies of the instructional process. This skill can be developed in conjunction with topic A2, above. Statistical tests tend to be meaningful to students at this level only as recipes used in the context of the design and analysis of meaningful studies of instructional procedures.

E. Career Opportunities

It is reasonable to ask what a graduate of this one-year program would be able to contribute to an organization which would consider him for employment. The answer would seem to be that most of the graduates of this program, much as is the case for one-year graduate programs in many areas, have little more to offer than strong potential for further development; that is, they probably would be ready for an internship--for training on-the-job--in instructional materials, in a college audiovisual center, in instructional research, in publishing, in government, in programed instruction, etc. They could learn to perform effectively in public elementary or secondary education,[1] in higher education, in government, and in industry; however, their performance probably would be at a sub-professional level.

IV. SECOND YEAR

Much of the work of the first year clearly is elementary and the major objective of the second year of a program in instructional technology would be further study of the same topics and further training in the same skills to enable the student to attain some sophistication in handling the vocabulary, principles and concepts of the several subjects and to develop proficiency in several of the skills which he began to acquire in his first year. A secondary objective of the curriculum at this stage would be an introduction to additional subjects and the initial development of new skills.

A. Information to be Acquired

By the end of the second year each student would be expected to be able to define and utilize correctly the elementary and advanced vocabulary, principles, and concepts in each of the following areas:

1. Human learning, motivation, personality, development, perception, and cognition
2. Theories of communication and the functions of language in society
3. Design and analysis of complex, multi-variable experiments on the instructional process
4. Programing for learning:[2] analysis, design, and development of instructional systems (where system implies multi-media)

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[1] Assuming that the student has met certification requirements in his undergraduate years.

[2] "Programed instruction" is used in its current narrow sense of those linear or branching materials which are direct descendents of Skinner's and Crowder's

5. Computer languages (Gotran, Fortran, and one or two others) and information systems

6. Operations research on instructional systems.

Note: Essentially the same modes of learning could be utilized during the second year as were proposed for the first year. Relatively little self-instructional material has been prepared on these topics and, except for computer languages and linguistics, it is unlikely that the commercial publishers will sponser the development of materials at this level. However, through seminars, colloquia, and systematic reading programs, it will be possible for second-year graduate students to assume a major responsibility for acquiring the information in the areas listed.

B. Application Skills

1. During the second semester of the year, the student should be provided with opportunities to advise and instruct subject matter specialists in

    a. techniques for preparing programed material

    b. techniques for producing a range of instructional materials (excluding films and television) for classroom use

    c. appropriate utilization of media in instruction

    d. appropriate utilization of miniature information storage and retrieval systems.

These experiences and skills occur and develop in a setting analogous to the clinical internship in the medical sciences and all probably can be developed rapidly and efficiently through teaching assistantships, a practicum and/or an internship in instructional materials and methods. Careful, systematic supervision and guidance of each student by a team of specialists would seen mandatory.

C. Production Skills

1. As an adjunct to and an integral part of the second year's seminar on programed instruction each student will be required to produce a 200 frame

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programs, i.e., small step, self-paced, active response, immediate knowledge of results, etc.; while, "programing for learning" is used to refer to procedures of engineering and managing the entire process of learning. Thus the latter term tends to be synonomous with systems design.

program under supervision. The subject matter could be a segment or module of that required in the first year program, thus providing a means of developing a library of self-instructional materials on a range of those topics included in the basic year of graduate study.

The verb produce is meant to include the creation of a programed unit as well as the production of a usable, tested program. It is highly desirable to encourage (a) the use of media other than or as supplements to print and (b) the production of a unit which can be used as a part of a system of instruction.

Program development is learned most rapidly and efficiently in a small-group tutorials (four-five students per class) occurring bi-weekly. Approximately 20 hours of instruction in the skills of writing and producing will be required, but this must be followed by close editorial supervision throughout the period of preparing and producing the program.

2. Production of relatively sophisticated (multi-media) learning programs should be attempted by each student during the second year. Production refers to the total learning program rather than to all of its components and is analogous to the production of a play by a director. It is included at this point rather than under Application Skills in the belief that the student will play a role in the production of some of the components of the learning program.

   This skill can be acquired in an internship or practicum (See D1 above).

D. Research Skills

1. Analyze, design, and synthesize two miniature instructional systems, one of which includes computer-guided instruction and one of which includes "media saturation."

   It is unlikely that a second-year student will be particularly proficient in this task; however, it seems desirable to "throw him into the drink" and let him struggle and fight his way out to assist him in developing an appreciation of and a minimum skill in systems analysis in education. The instructional system has to be small—perhaps only one classroom, one subject matter for a brief period of time (one or two months maximum), and one live teacher—or the complexities will be so overwhelming that the student is likely to learn only that the "drink" is wet.

   Again, the internship or a practicum seems to be the most appropriate vehicle for developing these skills.

2. A thesis was not recommended for the first year program because the students will be unable to undertake research of quality, given the expected entrance behavior. However, within the first month of the second year,

each student will be required to submit a proposal for a pilot study on some aspect of the instructional process in which media play a significant role. Ideally, the research plan, a preliminary proposal, could be developed as part of the seminar on research designs during the second semester of the first year of graduate study. If this is done, the student will be able to conduct his research, analyze the data, and write a report for publication by the end of the second year. Full responsibility for a piece of research resulting in a minimum of one publishable paper clearly will be advantageous when the student enters the job market. It has educational advantages which are obvious.

E. Career Opportunities

Those students who terminate their graduate work at the end of the second year will be employable in the same settings as those who terminate at the end of the first year; however, the second-year graduate generally would be expected to enter at a higher level, i.e., at a professional rather than at a sub-professional level. At this stage, a graduate has the competence to initiate and conduct research, direct a programed instruction facility, participate as a member of a team of system analysts as well as work in a general audiovisual service department. In time, he could expect to become an assistant to a dean of instruction or his equivalent in higher education.

V. THIRD YEAR

The third year of the program is viewed as the period of intensive specialization; therefore, some options within instructional technology are desirable. Some areas for specialization might be

1. information storage and retrieval
2. research on instructional technology
3. computer guided instruction
4. administration of
    a. instruction: process
    b. instruction: materials
    c. production center: learning programs.

A. Information to be Acquired

1. Research on instructional technology

   a. Systems analysis, operations research, instructional research

   b. Intensive specialization on a topic dissertation

   For students who elect to earn a doctorate in research in instructional media, the third year is to be devoted almost exclusively to participation in research; hence, the information to be acquired at this level will be highly specialized and is to be found largely in the contemporary literature on instructional research and operations research. When feasible, the student should spend as much of the year as possible in a learning and curriculum research center of the type described by Carpenter, *et al.*[1] Physical residence in a company of scholars and graduate students, all of whom are working on research under excellent conditions, will help to provide the breadth of view and the richness of context within which to undertake dissertation research.

2. Administration

   The type of information to be acquired by those who select a doctorate in administration will vary with the level of position desired and the area of specialization; therefore, the following is suggestive only.

   a. Principles and problems of administration in the area of specialization, e.g. instruction, programed learning production center, computer-guided instruction

      The case method coupled with guided reading and discussion should be the prime vehicles for acquiring this information.

   b. Political, social, and economic theory germane to the level and area of specialization

      For those who plan to work in a well-defined institutional setting such as secondary education, higher education, state or federal government, or industry, a knowledge of the history, structure, and functions of that institution is necessary for effective administration of a part of that institution. Presumably, acquisition of information about the institution can be acquired primarily through guided reading and a colloquim.

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[1] *A Research Report on Operational Plant for Developing Regional Educational Media Research Centers.* University Park, Pennsylvania: Division of Academic Research and Services, The Pennsylvania State University, April, 1962.

c. Intensive specialization in a limited area of knowledge

For those who desire a career in administration, a dissertation also should be required although it probably will be non-experimental in its methodology. Nevertheless, the discipline of scholarship is at least as appropriate for administrators as it is for teachers and researchers.

3. Computer-guided instruction

a. Knowledge and facility in additional synthetic languages and in symbolic logic

b. Techniques of analyzing and restructuring a subject matter (1) to meet the objectives of learning set for students of that subject and (2) to fit the characteristics of computers

c. Elementary principles of engineering utilized in designing computer-based systems of instruction

d. Sociology and psychology of knowledge

If computer-guided instruction becomes a significant method in education, it seems probable that it will have to be interdisciplinary and depend heavily upon the team approach to instruction. If so, the instructional technologist who works with computers will have to acquire knowledge of computer programing, but his major role as a member of a team will be in analyzing the instructional process in terms which can be translated into computer languages and functions and to determine what kinds of information and skills are learned best via what medium.

The categories of information listed in a-d, above, generally are acquired through formal study, i.e., through some type of classroom instruction. It is rather likely that much of this information will, in fact, have to be acquired in that fashion even by third-year graduate students, although symbolic logic and synthetic languages undoubtedly lend themselves to programing for self-instruction.

e. Intensive specialization in a limited area of knowledge

A dissertation under this option probably should take the form of (a) a detailed analysis of instruction in a specific subject and the design of a system of instruction in which a computer plays a major role, (b) the conduct of evaluative, descriptive, or comparative effective studies of an instructional system in which a computer is a component, or (c) an analysis of the structure of a subject matter by a computer for the purpose of improving the presentation (in a perceptual sense) of that subject to learners.

B. Application Skills

1. Teaching

   Inevitably, some graduates of a program in instructional technology will want to teach; others will find that it is desirable and/or necessary to teach part of the time. All will find themselves having to teach formally or informally. As a consequence, some experience in formal teaching--lecture, discussion, tutorials--probably should be provided for all third-year students although the program is too demanding to expect that students will attain more than a minimum level of proficiency in formal instruction. (This writer will not attempt to delineate the skills which are applicable in teaching.)

2. Few, if any, new application skills are added in the third-year program even for those who enter administration and computer-guided instruction. In the latter, the application is largely the translation of the instructional process, in part, into terms which are compatible with computer functions.

C. Production Skills

Students whose option is in instructional materials including instructional programs, presumably should have an internship in a center in which there is an opportunity to become familiar with and to develop competence in the production of several media of instruction (excluding television and film production).

As a matter of course, as has been implied at several points in this paper, all third-year students would profit from an internship in a setting in which the training function is recognized explicitly. An internship is as appropriate for computer-guided instruction or administration as it is for research. There probably would be little disagreement on this point *in principle*; however, internships in practice require supervision and guidance toward well-defined training objectives.

D. Administration and Supervision

Nearly all who will hold a doctorate from this program should be willing to serve in positions in which some administrative and supervisory functions will be required. Except for those whose option is administration, the experiences and skills associated with supervision will have to be obtained informally, hopefully beginning in the second year rather than in the third. If one conceives of instructional responsibilities in terms of a pyramid, then second-year students will learn some skills and acquire some information from third-year students, while they will, in turn, serve as teachers to first-year students. It may be desirable to give formal recognition of the responsibility of advanced students by designing a curriculum and context which will support a pyramid plan of instruction.

The operational abilities of those whose degree will be in administration cannot be specified at this point. Like teaching, administration is a complex interaction of personality, training, precept, and unknowns; hence, the opportunity for an internship, for practice with live problems in a realistic setting is most important.

E. Research Skills

As was indicated in section VA, all third-year students will be required to prepare a dissertation of high quality, i.e., a thorough study of a significant problem. The involvement in scholarship can provide more than mastery of the information on a topic; it can be a means for acquiring skills in defining issues clearly and in providing tentative solutions to issues. Whether the dissertation consists of an experiment or not is not the critical issue. It is critical that each student experience the pain and hard work of attempting to make an original contribution to knowledge.

For those whose option is research or computer-guided instruction, most of the skills of research will have been acquired during the first two years and the internship will serve to hone these skills to a high level of proficiency.

F. Career Opportunities

With a doctorate from the program described, one could expect to find employment (1) in research, teaching, and administration at the college level, (2) in research and administration in government and industry, and (3) in research and administration in county and urban public school systems. In some cases, the college opportunities would be in educational psychology, instructional materials centers, media research centers; in others, it would be in audiovisual departments, libraries, and schools or departments of communications.

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The references listed below are included only as suggested reading for those who may be concerned with planning a graduate program in instructional technology (programed instruction and computer-based instruction) with a stress on the "systems" concept.

General

The American Behavioral Scientist, 6, November, 1962, is a full issue devoted to "the new educational technology."

Glaser, Robert (ed.). Training Research and Education. Pittsburgh: University of Pittsburgh Press, 1962.

This book has a great many valuable suggestions for those concerned with the education and training of specialists in instructional technology. Chapters 1, 2, 8, 9, 17, and 18 are of greatest value in this project.

Programed Learning

Cook, J. O. and Miller, H. G. A Guide to Curriculum Study: Programed Learning. Raleigh, N.C.: Department of Curriculum Study and Research, State Board of Education, 1962.

This document was designed to encourage the examination and use of programed instruction to answer questions centering around three points:

1. The effects of programed instruction on teaching and learning.
2. The purposes for which programed instruction may be used.
3. The techniques of utilizing programed instruction.

Fry, Edward. Teaching Machines and Programmed Instruction. New York: McGraw-Hill, 1963.

In planning a curriculum, Chapter 7 will be of value.

Hughes, J. L. Programed Instruction for Schools and Industry. Chicago: Science Research Associates, 1962. Chapters 5 and 11.

Rocky Mountain School Study Council. Guidelines for the Selection of Programmed Materials. Denver: Bureau of Educational Research, University of Denver, 1962.

Computers in Education

Borko, Harold (ed.). Computer Application in the Behavioral Sciences. New York: Prentice Hall, 1962.

Much of this volume is desirable in establishing a background on the uses of computers in behavioral science. Chapters 3, 4, 14, 15, and 22 are recommended for minimum information.

Bushnell, Donald D. *The Role of the Computer in Future Instructional Systems*. Supplement 7, *AV Communication Review*, 11:1-70, March-April, 1963.

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Green, B. F. *Digital Computers in Research*. New York: McGraw-Hill, 1963.

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This is a more general and more technical treatment of the subject than the Gagné book cited below.

Gagné, R. M. (ed.). *Psychological Principles in System Development*. New York: Holt, Rinehart, Winston, 1962.

Chapter 1 provides an orientation of value in curriculum planning although the entire book should be read by those who wish to include system analysis in a curriculum.

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